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(Editorial policy continued on inside back cover)

Cover Photo: Ribbon snake from Powhatan County.

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Virginia Herpetological Society 2019 Annual Spring Survey
Sky Meadows State Park in Clarke and Fauquier Counties, Virginia

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Abstract: Sky Meadows State Park is a 752 hectare park in Clarke and Fauquier Counties with wetlands, woodland habitats, and open fields. It was surveyed 4 May 2019 for the pre-survey and 18-19 May 2019 for the Annual Spring Survey by 89 volunteers. There were 426 individuals of 29 species of herpetofauna recorded (16 amphibians and 13 reptiles) including one new record for Fauquier County: *Sternotherus odoratus*. Of the 29 species documented, one was a Virginia Department of Game and Inland Fisheries Tier IIIa species (Woodland Box Turtle), two were a Tier IVa species, (Jefferson Salamander and Queensnake), and one was a Tier IVb species (Common Snapping Turtle). Future surveys of the park could uncover an additional 20 new records for Clarke County and 9 new records for Fauquier County.

Key words: Herpetological Survey, Sky Meadows State Park, Fauquier County, Clarke County, VDGIF Tier IIIa, VDGIF Tier IVa, VDGIF Tier IVb, Woodland Box Turtle, Jefferson Salamander, Queensnake, Common Snapping Turtle

INTRODUCTION

The Virginia Herpetological Society (VHS) 2019 Annual Spring Survey was held at Sky Meadows State Park (SMSP) in Clarke and Fauquier Counties in Virginia. This was the first time the VHS had conducted a survey in either county. Sky Meadows State Park is just over 752 hectares (1,860 acres) and there were several different types of habitats: creeks, large ponds, open fields, edge habitats, forests, and rocky trails. Sky Meadows is located in two different counties and two different physiographic provinces. A majority of the park which lies in the northwestern corner of Fauquier County is located in the Piedmont province (Tobey, 1985) which is comprised of rolling hills, upland forests, and well-drained soils (Mitchell and Reay, 1999). A section of the park which is located in the southeastern corner of Clarke County and the extreme western edge of some of the Fauquier sites are located in the Blue Ridge province (Tobey, 1985). This is indicative of highland, rocky habitat with thin soils (Tobey, 1985).

Sky Meadows has a pretty storied past with dozens of owners. The surrounding area was a tract of land totaling 2.1 million hectares (5.2 million acres) owned by Lord Fairfax until the mid-1700's. The name Sky Meadows came about in 1942 when Sir Robert Hadow, who was a diplomat to the British Embassy, purchased the land and named it Skye Farm. In 1946 the land was purchased by Gen. Raymond Lee and he renamed it Sky Meadows. In 1973 the first 458 hectares (1,132 acres) was part of a purchase that was donated to the state of Virginia to be dedicated as a state park. The park first opened in 1983 and additional portions of land totaling 200 hectares (496 acres) were added in 1987 and 1991 to include the portions in Clarke County and the portion across Route-17 (The Friends of Sky Meadows, 2019). Today Sky Meadows State Park is 752 hectares (1,860 acres) with 22 miles of hiking trails (SMSP website, 2020)

Sky Meadows State Park was chosen as a survey location for several reasons, the first two being the VHS had never surveyed the park or the counties, Clarke and Fauquier, which surround the park. Additionally, there were a multitude of new county records that could possibly be documented and a variety of habitats that would support these new finds.

SURVEY SITES

The study sites for the VHS 2019 Annual Spring Survey at Sky Meadows State Park are listed below and can be seen in Figure 1.

Site 1 – Picnic Area/Hadow Trail (38° 59' 24.51"N, 77° 57' 29.52" W) This site started at the entrance to the Hadow Trail from the Picnic Area parking lot. It followed the Hadow Trail through woodland and stream habitat.

Site 2 (and P1 on the pre-survey) – Gap Run/Ambassador Whitehouse Trail (38°59'35.09"N, 77°58'4.89"W) This site started at the Gap Run trailhead along Boston Mill Road. It connected to the Ambassador Whitehouse Trail through woodland, stream, edge, and open grass habitat.

Site 3 (and P4 on the pre-survey – South Ridge Trail (38°59'18.42"N, 77° 58'12.05"W) This site started at the South Ridge Trail entrance along Boston Mill Road. The habitat consisted of woodland, stream, edge, and open habitat.

Site 4 (and P2 on the pre-survey) – Appalachian Trail (39°0' 59.00" N, 77° 57' 43.10" W) This site started at the Ashby Gap Trailhead and followed the Appalachian Trail along rocky, forest, and stream habitat.

Site 5 – Old Trail (39° 0'36.15"N, 77°58'39.16"W) This site was accessed by the Ashby Gap Trailhead and followed the Appalachian Trail. It started at the Old Trail split from the Appalachian Trail. This site consisted of upland woodland and stream habitat.

Site 6 (and P3 on the pre-survey) – Turner Pond (38° 59' 36.77" N, 77°57' 4.01" W) This site started at the Turner Pond parking lot and went around the pond and included the springhouse and riparian areas around the pond.

Site 7 – Rolling Meadows Trail (38°59'25.18"N, 77° 56'3 9.82" W) This site started at the Rolling Meadows Trailhead and went up to the Duck Ponds and back. The trail consisted of open meadows and some wetlands. This site also included part of Shearman's Mill which had forested and bog habitats.

Site 8 – Powerlines (38°59' 35.05" N, 77°56' 42.34" W) This site started at the parking lot on the side of the park across from US-17. It followed the eastern edge of the park along the powerlines. The habitat was woodland, edge, and open grassy fields.

Site 9 – North Ridge Trail (38° 59' 29.89" N, 77° 58' 9.79" W) This site was accessed by the overnight campers trail entrance off of Boston Mill Road. The site continued up to the North Ridge Trail and back. The habitat consisted of woodlands, upland woodlands, and streams.

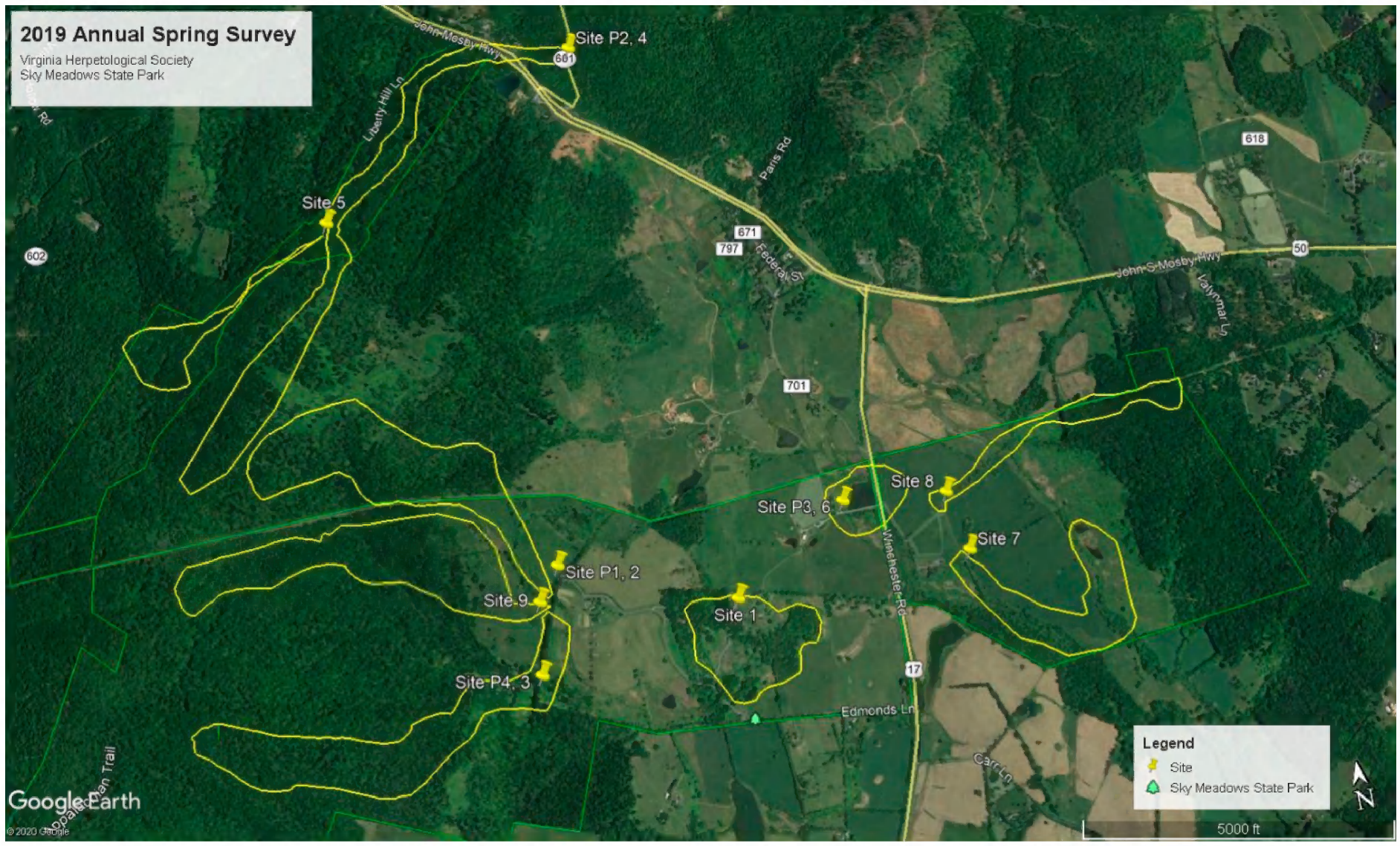

Figure 1. Map showing Sky Meadows Park and survey sites at the park.

METHODS AND MATERIALS

For the pre-survey on Saturday, 4 May 2019 survey participants were split into two groups in the morning and combined to form one in the afternoon. For the main survey on Saturday, 18 May and Sunday, 19 May 2019 participants were split into 9 groups. Prior to surveying, participants disinfected footwear and snake hooks in either Novalsan or 10% bleach. Methods used to find animals included hand capture, visual observation, listening for calling anurans, turtle traps, nets, and flipping cover objects. All animals that could be photographed as voucher specimens were and animals with signs of disease or injury were especially noted. Group leaders filled out survey data sheets to record all animals encountered on standardized recording sheets. Data sheets included information on: the physical environment, weather, animal health, and microhabitat. Other data collected included morphometric measurements of rare species, age, and sex. On Saturday, 4 May the temperature ranged from 16°C to 24°C with an overcast sky in the morning and a sunny sky in the afternoon. On Saturday, 18 May the temperature ranged from 17°C to 28°C with rain throughout the day. On Sunday, 19 May the temperature was 17°C to 31°C with partly sunny to sunny skies. There was a total of 457.5 person hours per survey effort between all of the survey dates - 54 person hours during the pre-survey Saturday, May 4 (Table 1), 320.5 person hours on Saturday 19 May (Table 2), and 83 person hours on Sunday, May 20 (Table 3).

Table 1. Summary of Survey effort per site on Saturday, 4 May 2019.

Survey Site	No. of Surveyors	Hours	Estimated Person Hours
P1	4	2.25	9
P2	5	2.25	11.25
P3	9	1	9
P4	9	2.75	24.75
Sub-Total			54

Table 2. Summary of survey effort per site on Saturday, 18 May 2019.

Survey Site	No. of Surveyors	Hours	Estimated Person Hours
1	13	4.5	58.5
2	12	5.5	66
3	7	5	35
4	8	5.25	42
6	18	1.25	22.5
7	12	3	36
8	11	5.5	60.5
Sub-Total			320.5

Table 3. Summary of survey effort per site on Sunday, 19 May 2019.

Survey Site	No. of Surveyors	Hours	Estimated Person Hours
5	8	4	32
9	17	3	51
Sub-Total			83

RESULTS

The pre-survey of Sky Meadows Park was conducted Saturday, 4 May 2019, there were nine people in attendance, and sites P1, P2, and P3 were surveyed. There were 47 individual animals of 16 species of herpetofauna (6 amphibians and 10 reptiles) recorded, including one new county record for Fauquier County: *Sternotherus odoratus*. On the Annual Spring Survey conducted on Saturday, 18 May and Sunday, 19 May 2019, there were 90 people in attendance and sites 1 to 9 were surveyed. There were 379 individual animals of 29 species of herpetofauna (16 amphibians and 13 reptiles) recorded. Between the pre-survey and Annual Spring Survey, 426 individuals of 29 species of herpetofauna were recorded – 16 amphibians (Table 4) and 13 reptiles (Table 5).

Table 4. Summary of the number of amphibians observed at each site.

Amphibians														
Species/Site	P1	P2	P3	P4	1	2	3	4	5	6	7	8	9	Total
Ambystoma jeffersonianum							1							1
Anaxyrus a.americanus				1	1				1	2	3	4	1	13
Anaxyrus fowleri					1			1				1		3
Anaxyrus sp. tadpoles												75		*75
Desmognathus fuscus							1							1
Desmognathus monticola						4			1				5	10
Eurycea bislineata					12	2	1	2	1		3		3	24
Hyla versicolor	1			1	3	2	2	1		10		1	1	22
Lithobates catesbeianus			1							4				5
Lithobates clamitans			1		4	1	5			6	11	1	1	30
Lithobates palustris					1	3	1			3	1		1	10
Lithobates sylvaticus					11									11
Notophthalmus v. viridescens							1					6	1	8
Plethodon cinereus	1	9		8	12	6	5	21	13			1	4	80
Plethodon cylindraceus	1			2	1	3		2	6				2	17
Pseudacris crucifer					1					5	1	5		12
Pseudotriton r. ruber										2				2
Total	3	9	2	12	47	21	17	27	22	32	19	94	19	324

Table 5. Summary of the number of reptiles observed at each site

Reptiles														
Species/Site	P1	P2	P3	P4	1	2	3	4	5	6	7	8	9	Total
Agkistrodon c. contortrix						2		5						7
Chelydra serpentina			1			4				2		1		8
Chrysemys p. picta			1							5		2		8
Coluber c.constrictor					1	2	2	1	1			1		8
Diadophis punctatus edwardsii	1	1				3		1					1	7
Lampropeltis triangulum						1		3				1		5
Nerodia s. sipedon			1		1									2
Pantherophis alleghaniensis	8			1	4	2	2	3	2			1	3	26
Plestiodon fasciatus		1											1	2
Regina septemvittata			1									1	1	3

Sternotherus odoratus			1							6				7
Terrapene c.carolina	1				1	1	4	1			1	1		10
Thamnophis s. sirtalis		1		1	1	2					1	2	1	9
Total	10	3	5	2	8	17	8	14	3	13	2	10	7	102

ANNOTATED CHECKLIST

Note: for the accounts below, numbers in parentheses are animals at each site.

Amphibians

1. *Ambystoma jeffersonianum* (Jefferson Salamander)
   A single *A. jeffersonianum* was found at site 3 under a piece of plywood by an old barn.

2. *Anaxyrus americanus americanus* (Eastern American Toad)
   Thirteen *A. a. americanus* were found across seven sites. The toads were seen moving around at sites P4, 1, 6(2), 7(3), 8(3), and 9 and were seen in or under a rotting log at sites 5 and 8.

3. *Anaxyrus fowleri* (Fowler's Toad)
   Three *A. fowleri* were seen at sites 1, 4, and 8. They were found foraging at sites 1 and 8. At site 4 an individual was found under leaves. Also of note, 75 *Anaxyrus* tadpoles were seen at site 8; since the species could not be identified they weren't included with the species totals for either *A. a. americanus* or *A. fowleri*.

4. *Desmognathus fuscus* (Northern Dusky Salamander)
   A single *D. fuscus* was found at site 3 in a stream habitat.

5. *Desmognathus monticola* (Seal Salamander)
   Ten *D. monticola* were found at sites 2 (4), 5, and 9 (5). All individuals were found under cover objects in a stream.

6. *Eurycea bislineata* (Northern Two-lined Salamander)
   Twenty-four *E. bislineata* were found across seven sites. All the individuals at sites 4, 5, and 7 were found under cover objects in a stream. The remaining sites 1, 2, 3, and 9 listed *E. bislienata* being found in a stream habitat, but didn't list the exact microhabitat.

7. *Hyla versicolor* (Gray Treefrog)
   Twenty-two *H. versicolor* were found. Auditory observations were recorded at sites P1, 1 (3), 4, 6 (10), 8, and 9. At site 3 two individuals were seen during the day and sites P4 and 2 (2) did not list the type of encounter.

8. *Lithobates catesbeianus* (American Bullfrog)
   Auditory calls of five *L. catesbeianus* were documented at sites P3 and 6 (4).

9. *Lithobates clamitans* (Green Frog)
   Lithobates clamitans was the most frequently documented anuran with 30 individuals found across eight sites. Individuals were heard calling at sites 3 (5), 6 (5), and 7 (10). The remaining individuals were found in or around bodies of water: sites P3, 1 (4), 2, 6, 7, 8, and 9.

10. *Lithobates palustris* (Pickerel Frog) Ten *L. palustris* were found at sites 1, 2 (3), 3, 6 (3), 7, 9. Individuals across all sites were found next to or in a body of water (stream, pond).

11. *Lithobates sylvaticus* (Wood Frog) Eleven *L. sylvaticus* tadpoles were found in a vernal pool created by a fallen tree at site 1.

12. *Notophthalmus viridescens viridescens* (Red-Spotted Newt)
Eight *N. v. viridescens* were found at three sites. All of the individuals found were in the terrestrial eft stage. At sites 3 and 8 (6), they were found under a log in a woodland environment. At site 9 an individual was found in Japanese Stiltgrass.

13. *Plethodon cinereus* (Eastern Red-Backed Salamander)
The most commonly encountered amphibian was *P. cinereus*, eighty of which were found across 10 sites. Not surprisingly, the only sites they were not encountered were open areas around a body of water. They were found under cover objects across sites: P1, P2 (9), P4 (8), 1 (12), 2 (6), 3 (5), 4 (21), 5 (13), 8 (6), and 9.

14. *Plethodon cylindraceus* (White-spotted Slimy Salamander)
Seventeen *P. cylindraceus* were found across 6 sites: P1, P4 (2), 1, 2 (3), 4 (2), 5 (6), and 9 (2); all of which were found under cover objects such as rotted logs and rocks. One individual at site 3 had a tail that was in the process of regenerating. The two individuals found at site 9 had mental glands that were present indicating they were male.

15. *Pseudacris crucifer* (Spring Peeper) Twelve *P. crucifer* were found at sites 6 (5), 7(1), and 8 (5). Auditory observations documented the 5 individuals at site 6. Individuals were visually encountered at sites 7 (1) and 8 (5).

16. *Pseudotriton ruber ruber* (Northern Red Salamander)
Two *P. r. ruber* were encountered in the springhouse at site 6. One was a larvae the other was an adult.

Reptiles

17. *Agkistrodon contortrix* (Eastern Copperhead)
Seven *A. contortrix* were found between sites 2 (2) and 4 (5). The two *A. controtrix* found at site 2 were under a rock along a rock wall and the other was coiled up on the forest floor. At site 4, five were found near a den site.

18. *Chelydra serpentina* (Eastern Snapping Turtle)
Eight *C. serpentina* were found at sites: P3, 2 (4), 6 (2), and 8. All the individuals encountered were seen swimming in a pond or in mud in a body of water.

19. *Chrysemys picta picta* (Eastern Painted Turtle)
Eight *C. p. picta* were found. P3, 6 (5), 8 (2). The turtles were captured in a turtle trap at site 6 (4) or were seen swimming in Turner Pond.

20. *Coluber constrictor constrictor* (Northern Black Racer)
Eight *C. c. constrictor* were found between six sites: 1, 2 (2), 3 (2), 4, 5, and 8. *Coluber c. constrictor* was found in a variety of habitats across the sites. At site 1, an individual was found at the edge of a field, next to the trail and under a cover object at site 2, two racer sheds were found next to a rock wall and in a tree at site 3, at site 4 an individual was found next to a rock wall, at site 5 one was found in a den with *A. contortrix*, and at site 8 one was seen basking in a field near a rock.

21. *Diadophis punctatus edwardsii* (Northern Ring-necked Snake)
Seven *D. p. edwardsii* were found at sites P1, P2, 2 (3), 4, 9. Six of the *D. p. edwardsii* were found under rocks between sites P1, P2, 2, and 4. At site 9, an individual was found under bark. It was noted that the rock it was found under at site 4 was in close proximity to the den where several *A. contortrix* were found.

22. *Lampropeltis triangulum* (Eastern Milksnake)
Five *L. triangulum* were found between three sites: 2, 4 (3), and 8. Four individuals were found next to or in a stone wall: sites 2, 4 (2), and 8. A juvenile was found at site 4 under a rock on a forested slope.

23. *Nerodia sipedon sipedon* (Northern Watersnake)
Two *N. s. sipedon* were found at sites P3 and 1. Both *N. s. sipedon* encountered were in close proximity to water. One was in Turner Pond (Site P3) and the other was found under a rock next to a stream (Site 1).

24. *Pantherophis alleghaniensis* (Eastern Ratsnake)
The most commonly encountered reptile was *P. alleghaniensis*; 26 individuals were found across nine sites. Nine were found in a tree at sites P1 (5), 1 (1), 3, 9. Seven were found in a woodland environment at sites P4, 1 (3), 2 (2), 9. Three were found in a den at site 4. Three were found in and around a rock wall at sites 5 (2) and 8. Another individual was found in the rafters in a barn at site 9. It was noted that one of the individuals found at site 2 had chew marks on its tail. Also, four of the individuals found at site 1 were in a tree potentially mating.

25. *Plestiodon fasciatus* (Common Five-lined Skink)
Two *P. fasciatus* were found between sites P2 and 9. Both were seen basking and the one seen at site 9 had ticks on its body.

26. *Regina septivamatta* (Queensnake)
Three *R. septivamatta* were encountered between three sites: P3, 8, and 9. Two were found at Turner Pond (sites P3 and 8) and the individual found at site 9 was under a rock in a stream.

27. *Sternotherus odoratus* (Eastern Musk Turtle)
Seven *S. odoratus* were found between sites P3 (1) and 6 (6) all of which were found in Turner Pond. One of the individuals at site 6 was missing an eye. A photo was submitted as a voucher a new record for Fauquier County (VHS Archive #599).

28. *Terrapene carolina carolina* (Woodland Box Turtle)
    Terrapene c. carolina was encountered 10 times at 7 different sites. Six *T. c. carolina* were found in woodland habitats at sites P1, 1, 2, 3 (2), and 8. Four individuals were found in open grassy areas at sites 3 (2), 4, and 7.

29. *Thamnophis sirtalis sirtalis* (Eastern Gartersnake)
    Nine *T. s. sirtalis* were found across seven sites: P2, P4, 1, 2 (2), 7, 8 (2), and 9. Five were found in a woodland habitat at sites P2, P4, 8 (2), and 9. Four individuals were found in a rock pile in edge habitat at sites 1, 2 (2), and 7. The individuals at site P2 and 8 (2) were basking.

DISCUSSION

Sky Meadows State Park was selected for the VHS 2019 Annual Spring Survey because it was a state park not previously surveyed that could accommodate a large group. Sky Meadows is also part of two counties not previously surveyed by the VHS: Fauquier and Clarke Counties. Prior to the spring survey Fauquier County had 46 species of herpetofauna documented; it now has 47 (VHS database). Clarke County had 34 species of herpetofauna documented with no additional species documented on the survey. Four species (2 anurans, 1 lizard, and 1 snake) observed during the survey in Fauquier County would have been a new county record if they had been documented a few kilometers away in Clarke County: *L. sylvaticus, P. crucifer, P. fasciatus,* and *R. septemvittata*. There are still many species that could potentially be documented in both counties: nine in Fauquier and 20 in Clarke. These remaining species are discussed below.

There are two anurans in Fauquier County and six in Clarke that were expected to be found at Sky Meadows State Park, but were not documented. For Fauquier County, *Lithobates palustris* (Pickerel Frog) has been found in all counties that surround Fauquier: Clarke, Loudoun, Prince William, Stafford, Culpeper, Rappahannock, and Warren (VHS database). *Lithobates sphenocephalus utricularius* (Coastal Plains Leopard Frog) has been found in four surrounding counties: Loudon, Prince William, Stafford, and Rappahannock (VHS database). Both of these species prefer wetland habitats (Mitchell and Gibbons, 2010) which were plentiful at many of the sites at Sky Meadows. For Clarke County, *Acris crepitans* (Eastern Cricket Frog) has been found in all surrounding counties: Frederick, Warren, Fauquier, and Loudoun (VHS database). *Lithobates s. utricularius* has been found in Warren County to the west and Loudoun to the east (VHS database). There are ample wetland habitats to document (Mitchell and Gibbons, 2010) *L. s. utricularius* and a large open pond at the beginning of site 4 that would potentially uncover *A. creptians*. *Hyla chrysocelis* (Cope's Gray Treefrog) has been found in Loudoun and Fauqier to the east (VHS database). *Psuedacris crucifer* has been found in Frederick, Warren, Fauquier, Loudoun Counties (VHS database). *Pseudacris feriarum* (Upland Chorus Frog) have been found in Frederick, Fauquier, and Loudoun Counties (VHS database). The three aforementioned species (*H. chrysoscelis, P. crucifer, and P. feriarum*) prefer woodland habitat with bodies of water to breed (Beane et al, 2010). These habitats were plentiful around the Clarke County areas of Sky Meadows

State Park. There are also several bodies of water outside of the park less than 0.5 km from the survey sites in Clarke County.

There are two species of salamanders in Fauquier County and five in Clarke County that were expected to be found on this survey. In Fauquier County *Gyrinophilus porphyriticus porphyriticus* (Northern Spring Salamander) and *Plethodon glutinosus* (Northern Slimy Salamander) were expected. *Gyrinophilus p. porphyriticus* is found in Clarke, Warren, and Rappohannock to the west. The preferred habitat of *G. p. porphyriticus* is headwater streams and cool springs in the Appalachian uplift (Petranka, 1998). There was potential for this habitat at the western portion of sites 2, 3, and 9 along the western edge of Fauquier County. *Plethodon glutinosus* is found in Warren County to the southwest. Typical of many salamanders in the genus *Plethodon*, *P. glutinosus* prefers cover objects in moist woodlands (Mitchell and Gibbons, 2010). There were many *P. cylindraceus* found. Upon closer inspection of chin coloration many of these could have potentially been identified as *P. glutinosus* (Neff, 2018). For Clarke County, there were two species in the genus *Ambystoma* that were expected, *A. maculatum* (Spotted Salamander) and *A. opacum* (Marbled Salamander). The former is found in all surrounding counties: Frederick, Warren, Fauquier, and Loudoun and the latter is found in Warren and Fauquier to the south. There was an abundance of habitat for both *A. maculatum* and *A. opacum* - such as cover objects and bodies of water in which to breed (Beane et al, 2010). If *A. jeffersonianum* was found, the aforementioned *Ambystoma* could exist in the park as well. *Hemdactylium scutatum* (Four-toed Salamander) is found in Frederick County to the northwest and Fauquier to the southeast (VHS database). It is known that *H. scutatum* shares breeding habitat with *A. opacum* and *A. maculatum* and cohabitates with *P. cinereus* and the *P. glutinosus* complex (Petranka, 1998). Since all of those animals were thought to be found or were found on the survey, it can be assumed *H. scutatum* would be as well. *Plethodon glutinosus* is assumed to be found in Clarke County as it is found in Warren County to the southwest. Many *P. cylindraceus*, as mentioned above, were found on the survey including ones in Clarke County. If closer attention was paid to the proper identification between the two species, we may have uncovered another county record. Future surveys could examine if *P. glutinosus* is found in the park and in Clarke County.

There were not any outstanding records of lizards for Fauquier County. On the other hand, Clark County currently has no documented lizard species and there is the potential of three species to be documented: *P. fasciatus* (Common Five-lined Skink), *Sceloporus undulatus* (Eastern Fence Lizard), and *Plestiodon laticeps* (Broad-headed Skink). *Plestiodon fasciatus* is found in Loudoun and Fauquier Counties to the east (VHS database). *Plestiodon laticeps* is found in three surrounding counties: Loudoun, Fauquier, and Warren (VHS database). *Sceloporus undulatus* is found in all surrounding counties: Loudoun, Fauquier, Warren, and Frederick (VHS database). All of these species prefer wooded areas with rocks or branches to bask on (Beane et al, 2010) which was present in the Clarke County sites.

There were four species of snake expected in Fauquier County and six expected in the Clarke County sites at Sky Meadows State Park. The four snake species in Fauquier were: *Lampropeltis getula* (Eastern Kingsnake), *Storeria dekayi* (Dekay's Brownsnake), *S. occipitomaculata* (Red-bellied Snake), and *Thamnophis saurita saurita* (Common Ribbonsnake). There was ample habitat for all these species at the sites surveyed within the park. The preferred habitat for *L. getula* can range from moist areas to bodies of water to drier field edges and suburban farm areas (Linzey and Clifford, 1981). Field edges were present along the powerlines at site 8 and the piles of wood and tin by the old barn at site 2 was decent habitat for *L. getula*. The habitat for both *S. dekayi* and *S. occipitomaculata* is pretty similar: wooded areas with ground cover such as rocks and logs (Linzey and Clifford, 1981). They were expected to be found throughout the sites with exception to site 6 around Turner Pond. The semi aquatic *T. s. saurita* was expected to be found around the moist wetlands and damp meadows (Beane et al, 2010) of site 6. The six species expected to be found in the Clarke County sites were: *Lampropeltis rhombomaculata* (Northern Mole

Kingsnake), *L. getula*, *Pantherophis guttatus* (Red Cornsnake), *R. septemvittata, S. dekayi,* and *S. occipitomaculata*. The habitat for *L. rhombomaculata, L. getula,* and *P. guttatus* is fairly similar and wide ranging from open fields, to wooded areas and rocky hillsides, to agricultural buildings (Linzey and Clifford, 1981). The rocky, wooded habitat of sites 4 and 5 (that are also due east of farmland) would have been ideal habitat for the three aforementioned snakes. *Regina septemvittata* likes wetland habitat (Beane et al, 2010) as indicated by the habitat it was found in at the Fauquier County sites: P3, 8, and 9. There was ample habitat for *R. septemvittata* at the Clarke County sites - a small pond at the beginning of site 4 and a stream that ran through both sites 4 and 5. Oddly enough, two snakes found across most of Virginia (VHS database) were not documented in Clarke County on this survey: *S. dekayi* and *S. occipitomaculata*. There was ample habitat such as cover objects in moist and dry wooded areas along sites 4 and 5.

There was one species of turtle expected in Fauquier County and no additional turtle species expected in Clarke County. *Glyptemys insculpta* (Wood Turtle) is found in three counties to the north of Fauquier: Warren, Clark, and Loudoun counties (VHS database). It can be found in a variety of habitats such as streams, fields, are forests (Beane et al, 2010) which was habitat that was present at every site in the park. A few of the animals not encountered were expected to be easy finds, specifically *L. getula, S. dekayi* and *S. occipitomaculata* in both Fauquier and Clark counties, *A. opacum* and *A. maculatum* in Fauquier County, and *L. sylvaticus, P. crucifer, and P. fasciatus* in Clarke County. Additional surveys occurring at different times of the year could help locate some of the species more active in early spring such as *A. maculatum*, *L. sylvaticus*, and *P. crucifer*. Information on the animals encountered at Sky Meadows State Park, and what was expected to be found in the park, was shared with park staff. Additional surveys of Sky Meadows would help further document the 29 outstanding records between Clarke and Fauquier counties.

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The Phenotype of the Eastern American Toad in the South-western Piedmont of Virginia.

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Abstract: The Eastern American Toad is a statewide distributed species which explosively breeds in the spring in Virginia. Between 13 and 20 March, 140 toads were collected at three different sites in the south-western piedmont of Virginia. These toads were observed and measured for SVL, mass, mid-dorsal stripe pattern, cranial crest pattern, average number of warts per dark dorsal spot, ventrum spotting pattern, and presence of enlarged tibial warts. Our data showed that males averaged 66.5 mm SVL with an average mass of 28.3 grams and females averaged 72.4 mm SVL with an average mass of 44.4 grams. A mid-dorsal stripe was found on 72% of toads. A spur connecting the cranial crest to the parotoid glands was found on 250 of 280 (89%) cranial crests observed. The average number of warts per black dorsal spot had the following distribution: 0 warts (n = 33; 23.6%), 1 wart (n = 71; 50.7%), and 2 warts (n = 36; 25.7 %). The ventral color pattern was observed as follows: spotted/mottled (n = 110; 79 %), a single spot (n = 2; 1 %), and unspotted (n = 28; 20 %). Enlarged tibial warts were observed on every toad. Every male toad had nuptial pads on its thumbs and dark throats.

Keywords: *Anaxyrus americanus*, axanthism, malformation, melanism, necrophilic amplexus, parasitism

INTRODUCTION

Virginia hosts four species of toads in the family Bufonidae. *Anaxyrus quercicus* (Oak Toad) and *Anaxyrus terrestris* (Southern Toad) have a distribution that limits them to the south-eastern corner of the state. *Anaxyrus americanus americanus* (Eastern American Toad) and *Anaxyrus fowleri* (Fowler's Toad) have a statewide distribution in Virginia. The Eastern Narrow-mouthed Toad (*Gastrophryne carolinensis*) and the Eastern Spadefoot (*Scaphiopus holbrookii*) are often confused as toads, but they are not classified in the family Bufonidae, and therefore are not true toads. A problem often seen when conducting herpetological surveys is figuring out the species of a collected toad. This is due to the problem of hybridization between *Anaxyrus a. americanus*, *Anaxyrus fowleri*, and *Anaxyrus terrestris* and the lack of knowledge of the specific characteristics that are generally seen with each species (Jensen, 2005). The most widely used field guide for identifying anurans is Peterson's Field Guide to Reptiles and Amphibians. This field guide describes an Eastern American Toad as having the following traits: "light mid-dorsal line sometimes present, usually 1-2 large warts in largest dark spots, chest and front of abdomen usually spotted, enlarged warts on tibia, and

parotoid glands either separated from ridges behind eyes or connected to them by short spurs" (Powell, Conant & Collins, 2016). The purpose of this paper is to describe the phenotype of several populations of Eastern American Toad in an area of Virginia which only has two species of toads living sympatrically (*Anaxryus a. americanus* and *Anaxyrus fowleri*). In this region of Virginia these two species of toads have very distinct calling and egg laying dates which makes collecting only one species at a time easier. It may also reduce the incidence of hybridization between the species, thus making a population's phenotype more characteristic of the species.

STUDY AREA

The study area included three sites, all located in south-western piedmont of Virginia. Each site listed below includes a GPS location and a general description of the surrounding area.

Anglers Park (36° 33' 41.27" N, 79° 21' 30.08" W).

The wetland site at Anglers Park consists of two shallow vernal ponds measuring 0.14 hectares and 0.18 hectares. Overall, the vernal ponds and marshy area surrounding the ponds is 2.55 hectares. These wetlands were constructed from a man-made wetland mitigation project. The wetlands are bordered to the north by 0.29 km of hard paved road and to the south by a 5.48-hectare grassy playing field. A 1.10 km running track encircles the field. The wetlands are 0.18 km north of the Dan River and 0.22 km east of a wastewater treatment plant. There is a mature hardwood forest 0.01 km north of the wetlands; a road divides the wetlands and the mature hardwood forest. This two-lane road, an unnamed extension at the end of Northside Drive, must be traversed for amphibians and reptiles to enter the wetlands from the forested area. It is a large source of mortality for migrating animals (personal observation). Being on the floodplain of the Dan River makes it vulnerable to periodic flooding. This site is downstream of a wastewater treatment plant; during major flooding the Dan River flows into the wastewater treatment plant holding lagoons and thus can carry wastes and contaminants to these wetland areas.

Peaksview Park (36°25'06"N, 79°13'36"W)

Peaksview Park is the second largest park within the City of Lynchburg. The park is approximately 65 hectares with a 2.8 km paved trail running the length of the park. The northeastern half is forested, with 64 km of mountain bike dirt trails meandering through it. The park is used extensively for recreational purposes with 7 lighted baseball fields, several grass fields used for soccer, two playgrounds, and two large picnic pavilions. Ivy Creek runs through the park, with several smaller tributaries flowing into it from different regions of the park. At the park, Ivy Creek is approximately 4-6 m wide and is perennial. The park lies within the floodplain of Ivy Creek and is subject to periodic flooding during heavy rains. Several low areas within the park temporarily collect water during rains and are used by Wood Frogs, Spring Peepers, Eastern American Toads and Pickerel Frogs as breeding sites. The specific site where American Toads were

collected for this study was along the stream flowing from a small (10m dia.) man-made pond at the western end of the park.

White Oak Mountain Wildlife Management Area (36°46'47.43"N, 79°19'54.18"W)
White Oak Mountain WMA is a 1,112-hectare management area in the central part of Pittsylvania County. The specific collection area consists of a controlled wildlife impoundment which is flooded during the winter and drained at the end of the summer, its size, depth, and volume continually change throughout the year (0.25-1 hectare). It is actively managed to support populations of Ambystomid salamanders and amphibians that require fish free breeding ponds. Within this site there is an intermittent stream and many small to large vernal pools. A hardwood and pine forest borders all these wetlands.

METHODS AND MATERIALS

On Friday 13 March 2020 at 1430h, JG was driving on Northside Drive in Anglers Park, Danville, Virginia and noticed a male Eastern American Toad immigrating to a series of vernal pools. Upon closer inspection of the site he noticed many crushed toads on the road and noted many calling males. Later that day, from 1830h - 2115h, JG and PS met at Anglers Park and with the help of Mark and Grant Gibson, collected 107 toads. On 19 March 2020, after a day of rain, Eastern American Toads were calling from Peaksview Park. PS, Josie Jones and Victoria Graves collected 47 animals. On 20 March 2020, JG, PS, and Grant Gibson visited White Oak Mountain WMA at sunset. There was a light rain occurring. Seventy-six adults were collected at this site. At all three sites, each toad was collected either by hand or with a dipnet. Toads were measured for snout-vent length (SVL) in millimeters and mass in grams. SVL was measured with a plastic ruler from the tip of the snout to the cloacal opening while the toad's body was pressed flat, at Anglers Park. Pittsburgh 6” digital calipers were used to measure SVL at Peaksview Park and White Oak Mountain Wildlife Management Area. Mass was measured using an Ohaus Model SPX123 scale (capacity 120g, accuracy 0.001 g). Additionally, each toad was inspected for disease, parasites, malformations or injuries. We filled out a data sheet for each toad that included specific information such as sex, presence/absence of mid-dorsal stripe, number of warts/dark dorsal spot, presence/absence of spur connecting cranial ridge to parotoid gland, chest pigment pattern (spotted/mottled, single spot, or plain), and presence/absence of enlarged tibial warts. The average, standard deviation, range and sample size was recorded for SVL and mass. Photos were taken of any unique or unusual color patterns, malformations, or disease. All animals were released alive at the site of capture, the same day as measurements were made.

RESULTS

Anglers Park
In all we collected and inspected 107 Eastern American Toads. Statistics on the following morphometric data was taken from a sample of 50 of the 107 toads (25 males and 25 females). This species exhibits strong sexual

dimorphism. The males averaged 63.68 ± 4.2 mm SVL (57 - 71, n = 25) and 21.9 ± 4.2 g body mass (17.1 - 32.8, n = 25). The females averaged 70.56 ± 6 mm SVL (61 - 89, n = 25) and 39.5 ± 12.3 g body mass (22.8 - 87.7, n = 25) (Figure 1). A two-sample t-test for both SVL and mass, comparing male and female data, concluded that males were both statistically smaller and had lower mass than females at this site ($P<0.05$ for both tests).

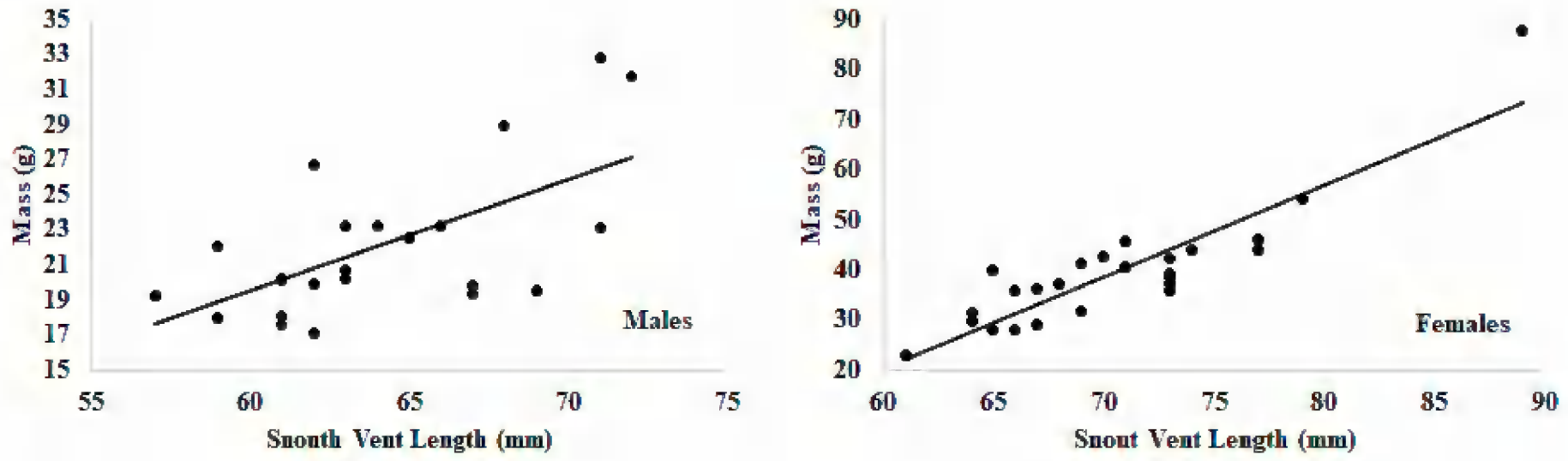

Figure 1. Relationship between snout-vent length (mm) and mass (g) for male and female Eastern American Toads collected at Anglers Park.

A mid-dorsal stripe was present on 40 toads (80%) and absent on 10 toads (20%). A spur connecting the cranial crest to the parotoid gland was found on 99 of 100 cranial crests examined. One animal had a deformed parotoid gland on the left side, which did not allow for a connection to be made. The average number of warts per black dorsal spot had the following distribution: 0 warts (n = 6; 12%), 1 wart (n = 26; 52%), and 2 warts (n = 18; 36%). The ventral color pattern was observed as follows: Spotted/mottled (n = 41; 82%), a single dark spot (n = 2; 4%), and unspotted (n = 7; 14%). Enlarged tibial warts were observed on every toad. Every male toad had nuptial pads on its thumbs and exhibited dark throats. One toad was observed with a deformed right parotoid gland (Figure 2 A). One leech was found attached to the cloaca of a toad (Figure 2 B). One male measuring 69 mm SVL had large patches of black on its head, both legs, and the right side of its body (Figure 2 C). Another light brown male frog measuring 57 mm SVL had several patches of grey colored skin on the right side of its body and the right front leg (Figure 2 D). A 65 mm SVL female was found to have a small white spot on its ventrum (Figure 2 E). Intradermal mites were parasitizing 10 of 107 toads (9.3% infection rate) (Figure 2 F). Six males and four females were observed with mites (Table 1). Necrophilic amplexus was observed at 1440 h 13 March 2020. JG found a male Eastern American Toad amplexed with a dead male Eastern American Toad on the road adjacent to the vernal pools (Figure 2 G). The dead toad was probably dead for at least a day due to its bloated body. The toads surveyed ranged in color from light tan to black; some were brick red and others grey (Figure 3).

Table 1. Toad sex, size and location of intradermal mites observed on 10 Eastern American Toads.

Sex	SVL (mm)	Location of mites
Female	73	Ventrum (6)
Female	77	Ventrum (1)
Female	67	Ventrum (3)
Female	67	Left hind leg (1)
Male	67	Left front foot (1), right front foot (3), ventrum (32)
Male	61	Throat (1)
Male	69	Ventrum (3)
Male	62	Ventrum (2)
Male	62	Ventrum (5)
Male	Not measured	Ventrum (1)

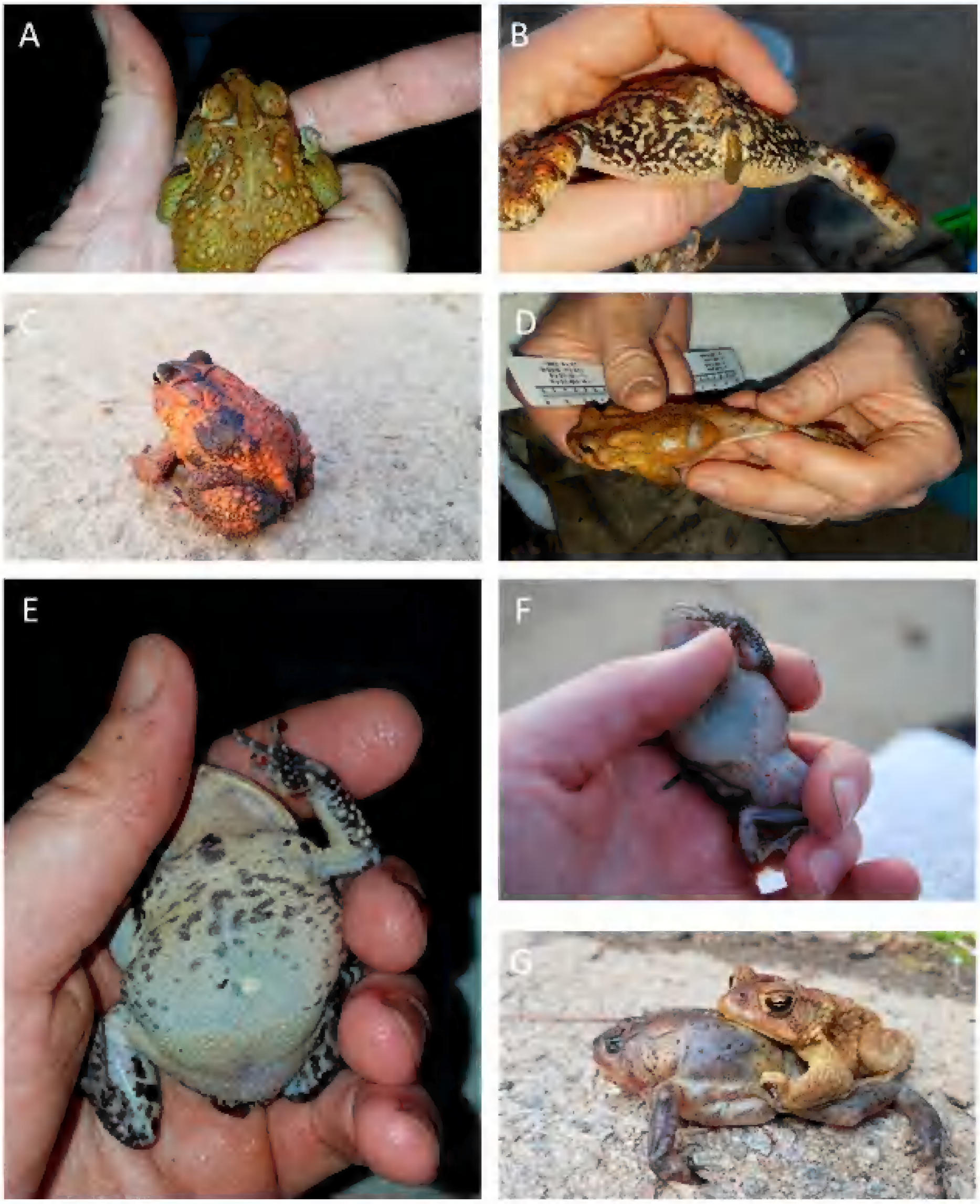

Figure 2. Observations made of Eastern American Toads at White Oak Mountain Wildlife Management Area. A) Damaged or malformed parotoid gland; B) leech attached to toad's cloaca; C) possible partial melanism; D) possible partial axanthism; E) white pigment spot on ventrum; F) intradermal chigger mites on toad ventrum; G) necrophilic amplexus.

American Toad Phenotype

Figure 3. Variations in dorsal coloration seen in Eastern American Toads.

Peaksview Park

47 adult toads were collected and inspected from Peaksview Park. Statistics on the following morphometric data was taken from all toads collected. This species exhibits strong sexual dimorphism. The males averaged 68.3 ± 5.1 mm SVL (59.6 -, 80.9, n = 42) and 35 ± 7.4 g body mass (21.9 - 57.3, n = 42). The females averaged 81.3 ± 8 mm SVL (74.4 - 94.98, n = 5) and 75.2 ± 7.2 g body mass (67.4 - 83.7, n = 4, * one female exceeded the maximum mass measurement for our device, 120g) (Figure 4). A two-sample t-test for both SVL and mass, comparing male and female data, concluded that males were both statistically smaller and had lower mass than females at this site ($P<0.05$ for both tests).

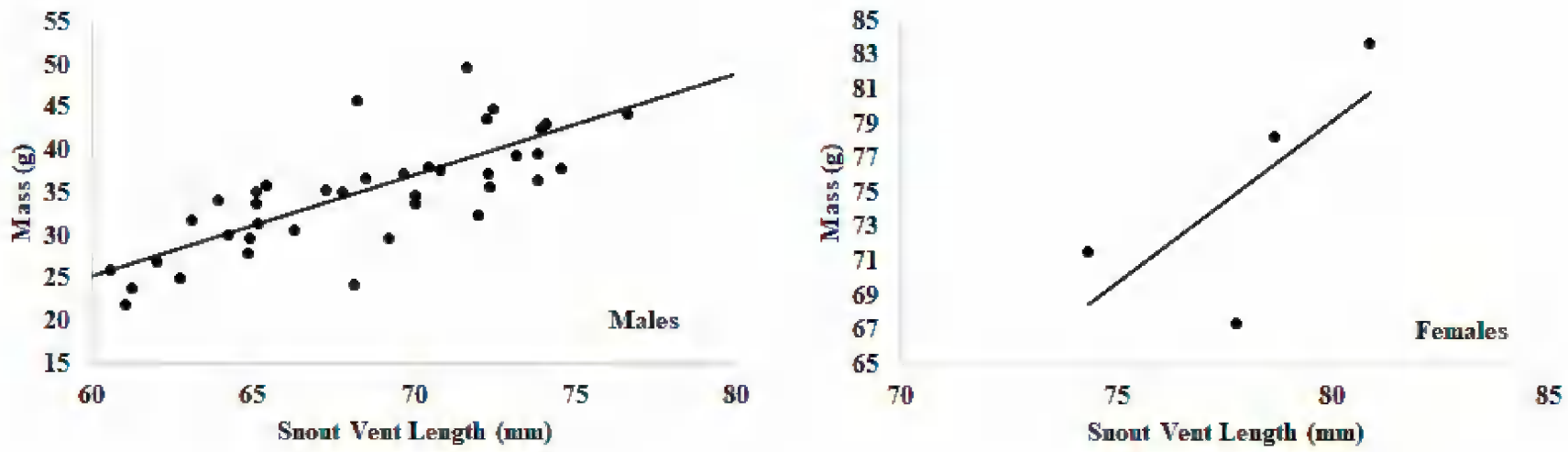

Figure 4. Relationship between snout-vent length (mm) and mass (g) for male and female Eastern American Toads collected at Peaksview Park.

A mid-dorsal stripe was present on 31 toads (66%). A spur connecting the cranial crests to the parotoid glands was found on 71 of 94 cranial crests checked (one toad had incompletely developed cranial crests) (Figure 5 A). The average number of warts per black dorsal spot had the following distribution: 0 warts (n = 17; 36.2 %), 1 wart (n = 19; 40.4 %), and 2 warts (n = 11; 23.4 %). The ventral color pattern was observed as follows: Spotted/mottled (n = 38; 81 %), a single spot (n = 0; 0%), and unspotted (n = 9; 19 %). Enlarged tibial warts were observed on every toad. Every male toad had nuptial pads on its thumbs and exhibited dark throats. No toads were found to contain intradermal mites. One toad had abnormal skin coloration on its dorsum and another toad had a red rash on its ventrum (Figure 5 B and C).

Figure 5. Observations made on toads at Peaksview Park. A) toad with very small and incompletely developed cranial crests; B) abnormal skin coloration on dorsum; C) red skin rash on ventrum.

White Oak Mountain Wildlife Management Area

Seventy-six adult toads were collected and inspected from this site. Statistics on the following morphometric data was taken from a sample of 43 toads (35 males and 8 females). This species exhibits strong sexual dimorphism. The males averaged 66.5 ± 4 mm SVL (57 - 72.6, n = 35) and 24.9 ± 3.8 g body mass (17.2 - 30, n = 35). The females averaged 72.8 ± 7.5 mm SVL (62.3 - 87.7, n = 8) and 44.3 ± 16.9 g body mass (25.3 - 80.5, n = 8) (Figure 6). A two-sample t-test for both SVL and mass, comparing male and female data, concluded that males were both statistically smaller and had lower mass than females at this site ($P<0.05$ for both tests).

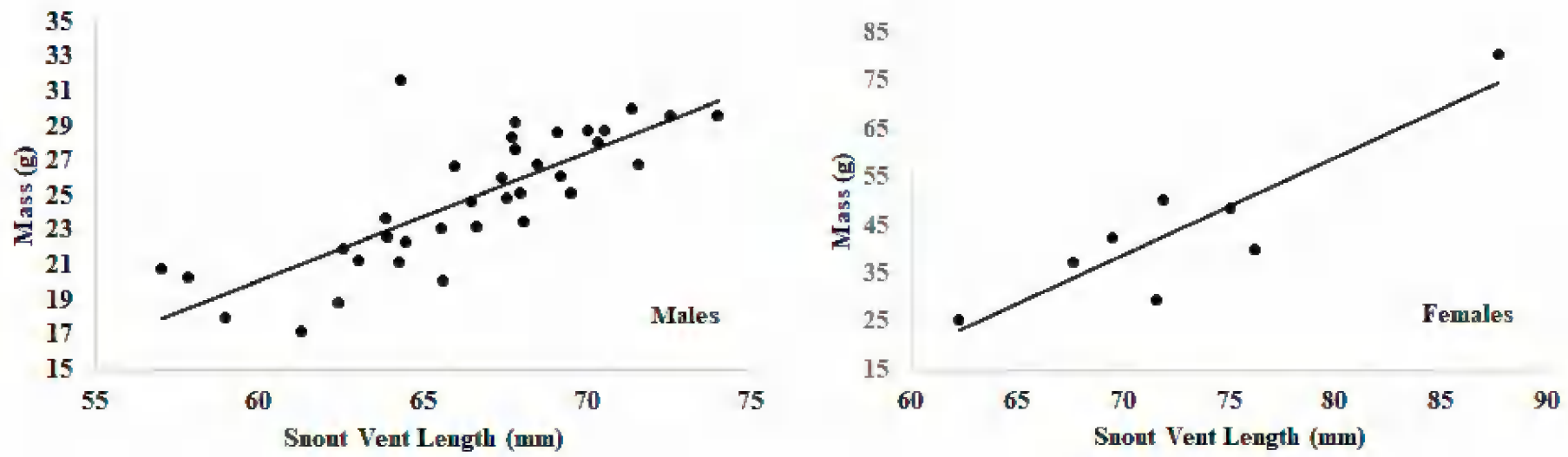

Figure 6. Relationship between snout-vent length (mm) and mass (g) for male and female Eastern American Toads collected at White Oak Mountain WMA.

A mid-dorsal stripe was present on 30 toads (70%) and absent on 13 toads (30%). A spur connecting the cranial crests to the parotoid glands was found on 80 of 86 cranial crests checked. The average number of warts per black dorsal spot had the following distribution: 0 warts (n = 10; 23%), 1 wart (n = 26; 61%), and 2 warts (n = 7; 16 %). The ventral color pattern was observed as follows: Spotted/mottled (n = 31; 72 %), Single spot (n = 0; 0%), and Plain (n = 12; 28 %). Enlarged tibial wart was observed on every toad. Every male toad had nuptial pads on its thumbs and had dark throats. A 70 mm SVL male toad had a left deformed parotoid gland (Figure 7 A). One toad had a lower hind limb stripped to the bone (Figure 7 B). A female (SVL 69.5 mm) had a yellow spot on its ventrum (Figure 7 C). A 69.2 mm SVL male had a grey patch on its dorsum (Figure 7 D). Intradermal mites were parasitizing 11 of 76 toads (14.5% infection rate). Eleven males and no females were observed with mites (Table 2).

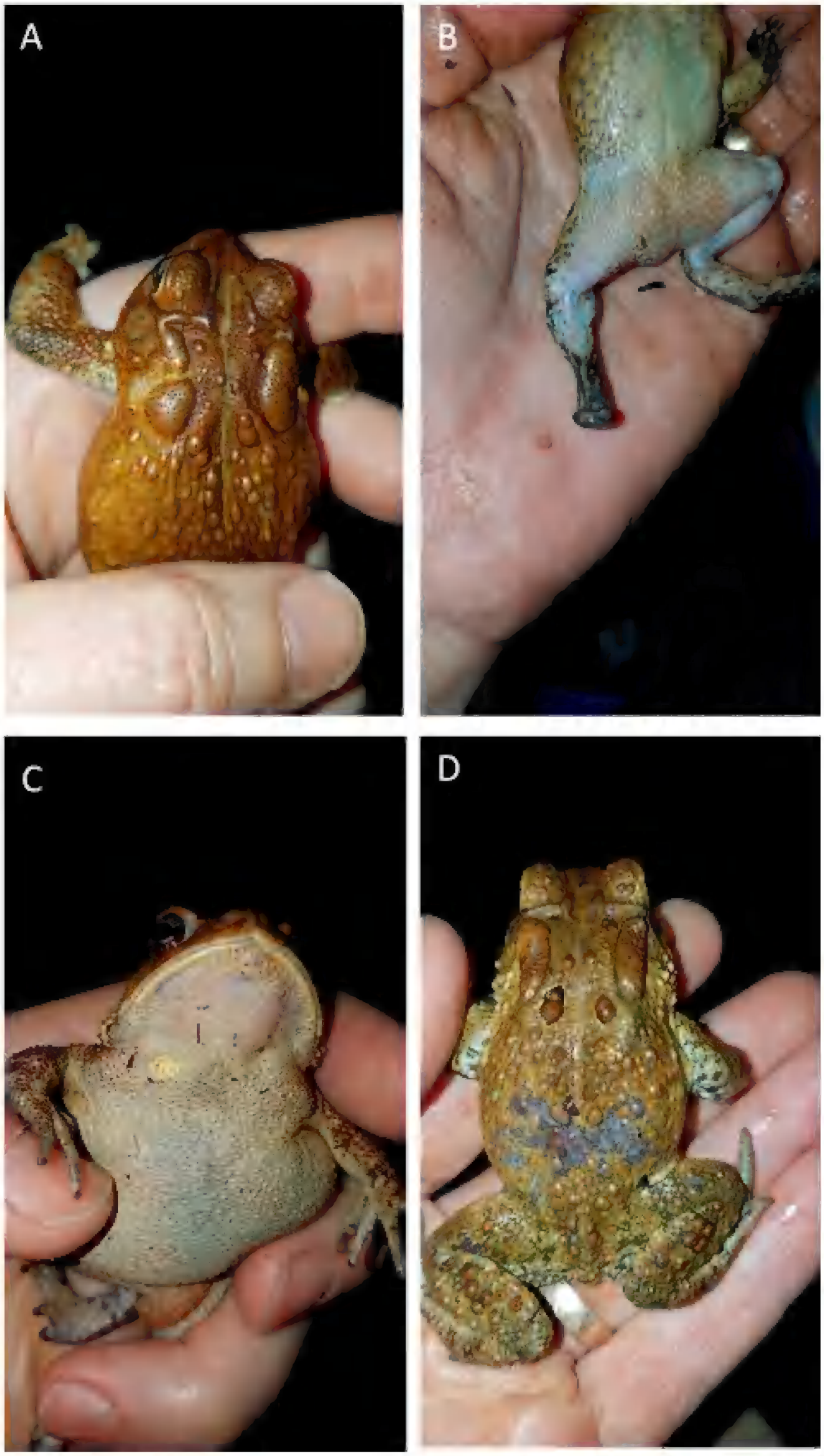

Figure 7. Observations made on toads at White Oak Mountain WMA. A) Toad with damaged or malformed parotoid gland; B) male toad with right hind leg injury; C) female toad with yellow spot on ventrum; D) toad with possible partial axanthism.

Table 2. Toad sex, size and location of intradermal mites observed on Eastern American Toads.

Sex	SVL (mm)	Location of mites
Male	67.8	2 chiggers on ventrum
Male	67.7	1 chigger on ventrum, 2 chiggers on legs
Male	64.3	1 chigger on ventrum
Male	59	1 chigger on ventrum
Male	70.3	1 chigger on hind leg
Male	71.6	2 chiggers on ventrum
Male	71.4	10 chiggers on legs and ventrum
Male	Not measured	1 chigger on leg
Male	Not measured	1 chigger on ventrum
Male	Not measured	7 chiggers on ventrum, 3 on hind legs
Male	Not measured	1 chigger on ventrum

Summary

What follows is a summary of all the data from 140 toads collected at our three sites. Male toads averaged 66.5 ± 4.8 mm SVL (57 - 80.9, n = 102) and 28.3 ± 8 g body mass (17.1 - 57.3, n = 102). Female toads averaged 72.4 ± 7.3 mm SVL (61- 94.98, n = 38) and 44.4 ± 16.8 g body mass (22.8 - 87.7, n = 37). A mid-dorsal stripe was present on 101 toads (72%) and absent on 39 toads (28%) (n=140). A spur connecting the cranial crests to the parotoid glands was found on 250 of 280 cranial crests checked. The average number of warts per black dorsal spot had the following distribution: 0 warts (n = 33; 23.6%), 1 wart (n = 71; 50.7%), and 2 warts (n = 36; 25.7 %). The ventral color pattern was observed as follows: Spotted/mottled (n = 110; 79 %), a single spot (n = 2; 1 %), and unspotted (n = 28; 20 %). Enlarged tibial warts were observed on every toad. Every male toad had nuptial pads on its thumbs and dark throats.

We measured SVL and mass, by sex at all three sites. At Peaks View and Anglers Parks, the number of females was too small to do a statistical analysis, so these data were analyzed for males only. For males, the mass data were not homogeneous, and for the White Oak Mountain WMA site, the masses are not normally distributed. Thus, we could not do a statistical analysis on the mass data for males. In the SVL analysis for males, the data did not deviate from normality and the mean variances are similar between sites ($P>0.05$), so we could run a statistical analysis (ANOVA) for those data. There

was a significant difference in the mean SVL only between the Peaks View Park and White Oak Mountain WMA sites, with SVLs being larger for Peaks View Park ($P<0.05$) (Figure 8).

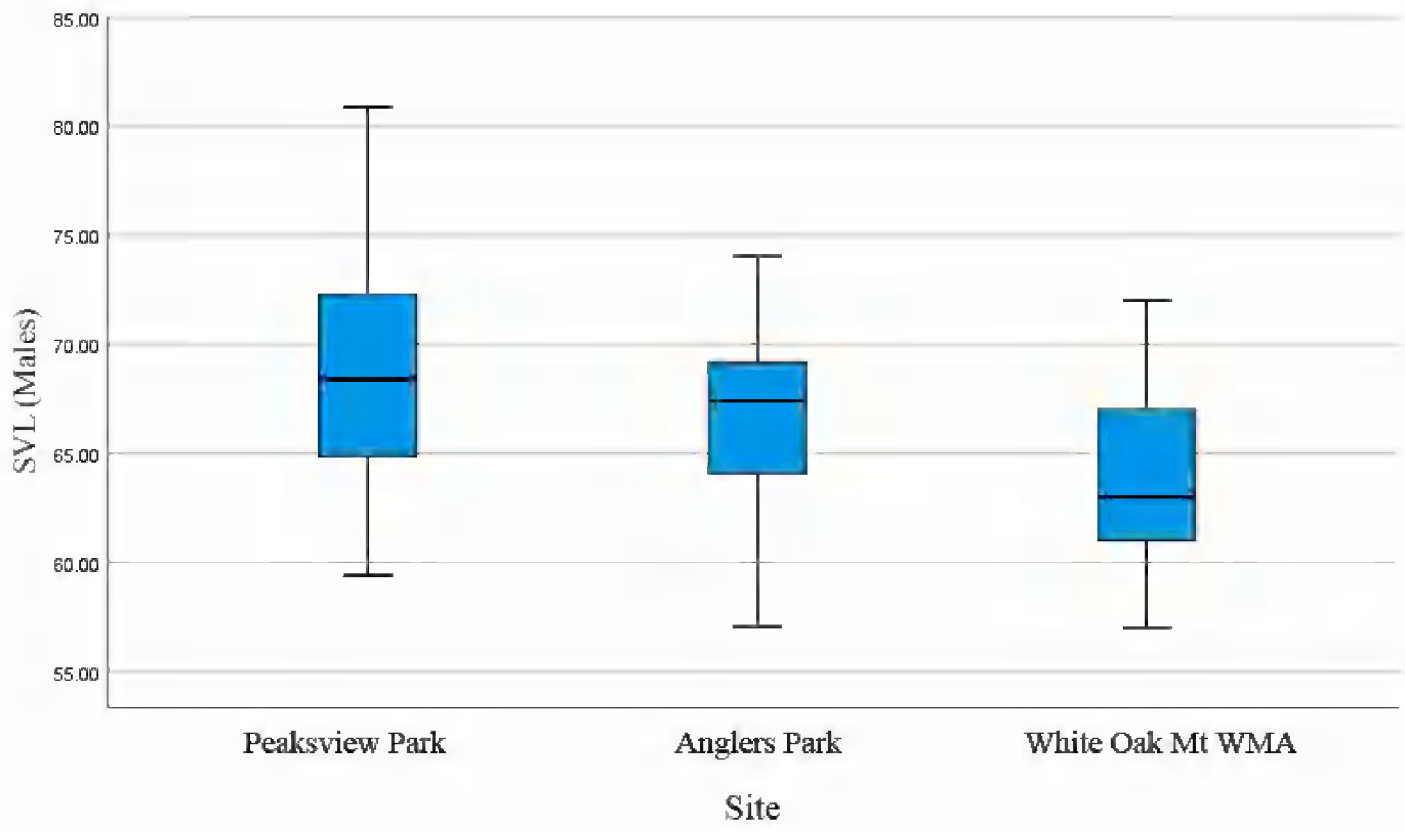

Figure 8. Site vs. SVL for males for the three study sites.

Table 3. Length, mass, warts/tibial spot, mid-dorsal stripe, and intradermal mites for three populations of American Toads.

	Anglers Park	Peaksview Park	White Oat Mt WMA
Length males	63.68 ±4.2 mm N=25	68.0 ±5.1 mm N=42	66.5 ± 4.0 mm N=35
Length females	70.56 ±6.0 mm N=25	81.3 ± 8.0 mm N=4	72.8 ±7.5 mm N=8
Mass males	21.9 ± 4.2 g N=25	35.0 ± 7.4 g N=42	24.9 ±3.8 g N=35
Mass females	39.5 ± 12.3 g N=25	75.2 ± 7.2 g N=4	44.4 ±16.9 g N=8
Warts/Tibial spot	1.24	0.87	0.93
Mid-dorsal stripe	80%	66%	70%
Intradermal Mites	9.3%	0%	14.5%

DISCUSSION

In this study we were able to collect and survey for disease, malformations, and parasites on 140 Eastern American Toads in three locations. These 140 toads (38 females and 102 males) were assessed for eight morphometric and other phenotypic traits. In Ohio, 94 adult Eastern American Toads (46 males and 48 females) in the Cincinnati Museum Center's collection were assessed for mid dorsal stripe, spur connecting the cranial crest to parotoid gland, and number of warts per dark spot on the dorsum (Brune, 2013). They found a mid-dorsal stripe present on 60% of the animals surveyed compared to our 72%.

A spur connecting the cranial crests to the parotoid gland was found in 17% of their toads, compared to 88.7% in our toads. They found an average number of warts per dark spot to be: 0 warts = 1%, 1 wart = 34 %, 2 warts = 41%, 3 warts = 19%, and 4 warts = 4%. Our data showed 0 warts = 23.6%, 1 wart = 50.7%, and 2 warts = 25.7%. The differences for toads in Ohio and our data could be due to differences in sample size, due to their data coming from a wider geographic area (all of Ohio), or populational differences in these characters. They found the SVL mean for males was 61.6 mm and 68.3 for females, these measurements were not much different than our means of male SVL of 66.5 mm and female SVL of 72.4 mm.

Peaks View Park is the most urban of the three sites. White Oak Mountain WMA is the least disturbed of the three sites. A variety of factors may be the cause of any differences in SVL, so we cannot say with certainty what the cause is: it is possible there are fewer predators at Peaks View Park, allowing toads to live longer and reach larger sizes; there may also be environmental differences between the sites creating differences in food availability.

Without histological examination it is hard to definitively identify the cause of the color anomalies we observed in several toads. The toad in Figure 2(C) with dark black blotches may have patches of skin with partial melanism. The toad in figures 2(D) and 7(D) having patches of grey skin may have partial axanthism. Unexplained patches of skin coloration such as in figure 2(E) and 7(C) have been observed in other species and represent areas of the skin with extra or missing chromophores (Kolenda et al., 2017). The observation of the toad with very small cranial crests (figure 5 A) probably represents a deformity in the development of cranial bones, as the cranial crests are due to the growth of a ridge of bone. We did not euthanize any toads infected with the intradermal mite larvae to identify the species of the parasite. Parasitism of *Lithobates palustris* by the intradermal mite *Hannemania dunni* has been documented for White Oak Mountain WMA (Gibson and Welbourn, 2018).

Further studies on the phenotype of *Anaxyrus terrestris* and *Anaxyrus fowleri* are warranted in Virginia. This work would be very helpful helping to identify key characteristics so that more accurate identifications are made by field biologists.

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ACKNOWLEDGEMENTS

We would like to thank Grant and Mark Gibson for helping collect toads at Anglers Park, and Josie Jones and Victoria Graves for helping with collections and measurements at Peaks View Park. Norman Reichenbach aided with the statistical analysis. Matt Becker and Kory Steele provided very valuable edits to an earlier version of this paper.

***Ambystoma maculatum* (Spotted Salamander):** VA. Russell Co. 125 Hazel Osborne Rd. Castlewood. (36.8489143; -82.3459236) 14 July 2020. Kenrick Cochran.

County Record: The distribution of the Spotted Salamander (*Ambystoma maculatum*) in far southwestern Virginia is sparse. Only Smyth, Wise, and most recently Washington (Roger Phelps. 2020. Ambystoma maculatum: Field Note. Catesbeiana 40(1):70) Counties have records, and those are of single individuals. This record in Russell County helps fill the gap between Wise and Washington Counties, and indicates they are probably more prevalent than indicated by range maps.

On 14 July 2020, I encountered a Spotted Salamander under some wood beside a shed on my property. The salamander was an adult, approximately 15-20 cm in length. There is no freshwater body in the immediate area. This record is the first for Russell County. A digital photo was submitted to the VHS Archive (#593) as a voucher.

Kenrick Cochran
125 Hazel Osborne Rd.
Castlewood Va.

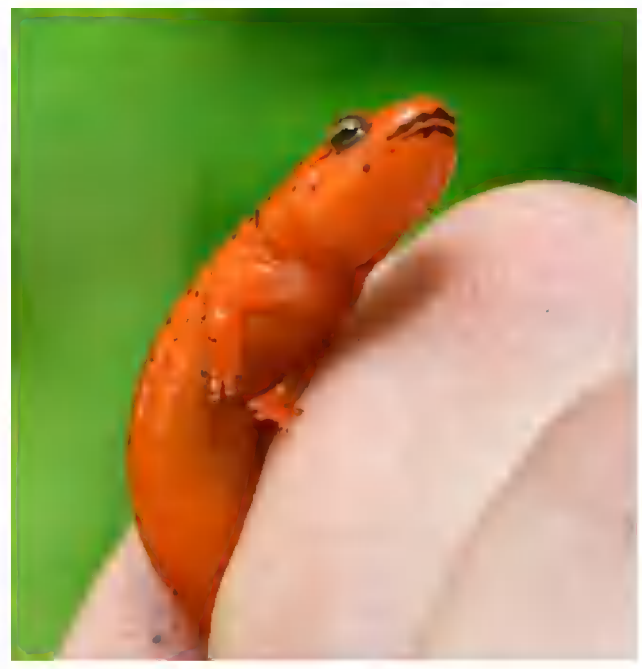
***Eurycea lucifuga* (Cave Salamander):** VA Alleghany County, Island Ford Cave, near Covington (37.780429; -79.923159). 20 June 2020. David Lindemann.

County Record: The Cave Salamander (*Eurycea lucifuga*) has a Virginia distribution scattered along the western counties. It is in these montane counties that caves are found, the primary habitat for Cave Salamanders. They are recorded in northern Virginia in Frederick County, then in the central western Counties of Craig, Botetourt, and Rockbridge, and many others farther south. This report extends this central distribution up to Alleghany County.

On 20 June 2020, I was caving in Island Ford Cave where I saw and photographed a Cave Salamander on the wall of the cave. I noticed the VHS website did not list a record for Alleghany County. A photograph was submitted to the VHS (Archive # 601) as a voucher.

David Lindemann

***Pseudotriton ruber ssp. nitidus* (Blue Ridge Red Salamander).** VA: Giles County. Mountain Lake Biological Station, (37.375394, -80.515885). 7 September 2020. Joe Girgente



County Record: The afternoon of 7 September 2020 was a warm and sunny day and I was flipping small rocks in a small, cool stream in the Mountain Lake Wilderness. An adult Blue Ridge Red Salamander (*Pseudotriton ruber ssp. nitidus*) was found under a rock in the running water, identifiable by the small adult size relative to *P. ruber ssp. ruber*, lack of black pigment on most of the tail, and limited black pigment under the chin. There are no records of the Blue Ridge Red Salamander from Giles County in iNaturalist, FWIS Database, or the VHS Website. This observation thus provides the first record of *P. ruber spp. nitidus* in Giles County. This species is known from photos in neighboring Montgomery and Bland Counties. The dying forest canopy is slowly causing more sunlight and warmer temperatures to increase drying of the forest floor while ferns and sedge dominate the understory, but the streams in the area are still relatively cold and full of life.

Joe Girgente
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https://www.inaturalist.org/observations/58945954

***Acris crepitans* (Eastern Cricket Frog)** VA: Charlottesville City. Meadowcreek Golf Course (38° 02' 50" N, 78° 27' 17" W) 7 July 2020. Chris Asquith.

City Record: The Eastern Cricket Frog (*Acris crepitans)* is well-documented throughout the Virginia piedmont, but lacks a record for Charlottesville City. The city of Charlottesville itself is only 26.6 square kilometers, and much of the recreational public land is in neighboring Albemarle County. Many reptile and amphibian species that are currently recorded for the surrounding Albemarle County are not recorded for Charlottesville City, like the Eastern Cricket Frog, and are likely within the city limits but lacking records.

On 7 July 2020, I was walking by the Meadowcreek Golf Course beginning at 10:15 PM. The sound of a chorus of Eastern Cricket Frogs was continuous and deafening upon approach. I observed one pair in amplexus on the banks of a pond. The air temperature was 27.8° C and the humidity was 75% that night. A recording was submitted to the VHS as a voucher (Archive # 576).

Chris Asquith
Charlottesville, Virginia

***Anaxyrus quercicus* (Oak Toad).** VA: Sussex County, Big Wood Wildlife Management Area. 19 June 2020. Paul Sattler and Jason Gibson.

Diet: The Oak Toad, *Anaxyrus quercicus*, is a generalized predator of small ground-dwelling invertebrates including arthropods, annelid worms, and terrestrial mollusks (Hamilton, W. J. Jr. 1955. Notes on the ecology of the oak toad in Florida. Herpetologica 11: 205-210; Punzo, F. 1995. An analysis of feeding in the oak toad, *Bufo quercicus* (Holbrook), (Anura: Bufonidae) Florida Scientist 58: 16-20). In an extensive study aimed at assessing the role of this species in reducing the insect populations of cultivated plants, Hamilton (*op. cit.*) examined stomach contents of 200 toads from Florida and Georgia. The diet was dominated by ants (94% of the stomach examined contained ants), with some stomachs containing over 200 ants, followed by beetles (67%; the principal family consumed was Carabidae), spiders (17%), and mites (16 %). Based on these findings, Hamilton (*op. cit.*) suggested that the prevalence of ants in this species' diet is likely a reflection of the extraordinary abundance of this group in the range of *A. quercicus* (rather than an indication of prey selectivity). According to Hamilton (1954. The economic status of the toad. Herpetologica 10: 37-40; 1955), the "more prominent [ant] species", both in terms of frequency of occurrence and numbers consumed, were small and medium-sized taxa including *Brachymyrmex depilis* Emery, *Dorymyrmex pyramicus* (Roger) (likely misidentification of other local *Dorymyrmex* spp.; historical records of *pyramicus* represent a composite species with an extremely broad geographic range), *Odontomachus haematodus* (Linnaeus); *Solenopsis globularia* (Smith, F.), *Pheidole floridana* Emery, and *Forelius pruinosus* (Roger) (as *Iridomyrmex pruinosus*). In a more recent study of 167 adult and 144 juvenile *A. quercicus* from Florida, Punzo (*op. cit.*) recovered ants (79.8-84% of the stomachs examined contained ants depending on season), spiders (54.2-56.1%), termites (24.6-26.5%), and carabid beetles (24.6-36.1%) as the principal dietary items of adult toads. The diet of juveniles was dominated by small-bodied arthropods including collembolans (87.3-91.3%), ants (87-92.5%), spiders (44.3-49.3%), and mites (22.2-25.3%). These data suggest that ants are the principal prey item of this species, at least across the southern reaches of its range. To our knowledge, the diet of the Oak Toad in Virginia has not been previously studied. The purpose of this note is to provide a detailed account of the prey taxa found in the stomach of a single *A. quercicus* from the Coastal Plain of Virginia near the northern edge of this species' known distribution.

On 19 June 2020, a dead adult Oak Toad was found in a small puddle of water at Big Woods WMA. The main tract of the Big Woods WMA consists of 893.6 hectares of loblolly and longleaf pine forest managed by the Virginia Department of Wildlife Resources to restore open pine savanna habitat through prescribed burns and planting of longleaf pine. The animal was fresh and intact and collected to examine gut contents. After the stomach was dissected, the prey items were examined under a stereomicroscope and identified to the lowest taxonomic level possible.

Our examination of the *A. quercicus* stomach revealed the presence of 19 ant specimens including 7 nearly intact *Crematogaster pilosa* (Emery), and 12 highly fragmented *Nylanderia faisonensis* (Forel) (7 *rudis* Complex (5; taxa in this complex are

practically impossible to separate based on morphology alone) (Fig. 1).

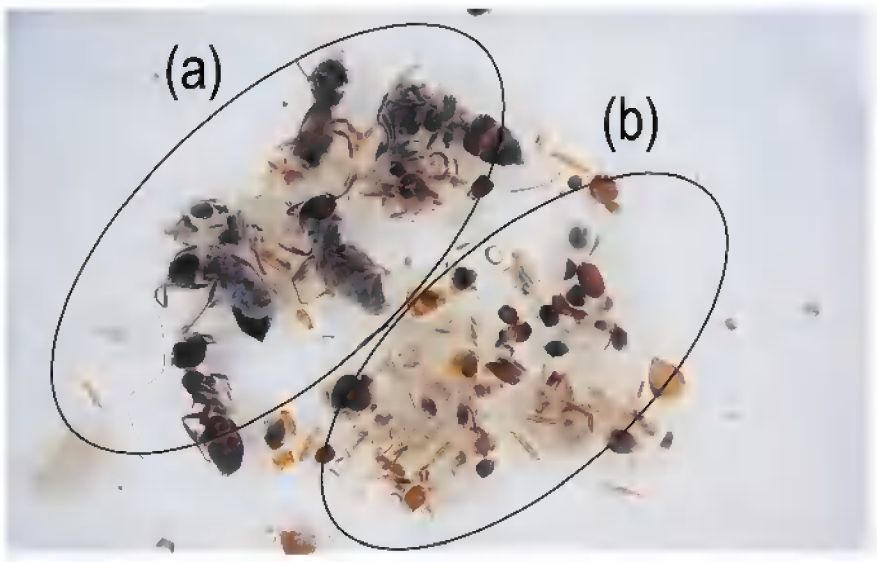

Figure 1. Ant prey items from the stomach of an adult *Anaxyrus quercicus* collected at Big Wood Wildlife Management Area (Sussex Co., VA) (photo by K. Ivanov):
a) *Crematogaster pilosa*, **b**) fragmented remains of *Nylanderia faisonensis* and *Aphaenogaster rudis* Complex.

Both *N. faisonensis* and *A. rudis* Complex are common and widespread in Virginia (Ivanov K., L. Hightower, S.T. Dash, and J.B. Keiper. 2019. 150 years in the making: first comprehensive list of the ants (Hymenoptera: Formicidae) of Virginia, USA. Zootaxa 4554 (2): 532–560). These woodland taxa are known to nest in soil, in leaf litter, inside nutshells on ground, in and under rotten wood, as well as under other cover objects. *Crematogaster pilosa* has a more limited Virginia distribution, but can be locally abundant in appropriate open and semi-open wet-mesic and wet habitats such as meadows, and edges of open fields, swamps and marshes where it nests in grass/sedge tussocks, hollow weed stems, and dead wood stems and branches.

The presence of both nearly intact and highly fragmented ant remains in a single stomach suggests that these prey items were obtained during, at least, two separate foraging events. Given the habitat preferences of the prey taxa examined, it is also safe to assume that these foraging events occurred in different habitats. Drawing conclusions based on prey items from a single stomach is premature, however, our data suggest that ants likely play an important role in the diet of the Oak Toad in Virginia as they do elsewhere.

Vouchers of all prey items are deposited in the Invertebrate Collection at the Virginia Museum of Natural History. This work was conducted under the DWR collecting permit #064948.

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***Gastrophryne carolinensis* (Eastern Narrow-mouthed Toad).** VA: Buckingham County: Wildflower Lane, Dillwyn (37.4116, -78.435). 15 August 2020. C. Michael Stinson.

County Record: The Eastern Narrow-mouthed Toad (*Gastrophryne carolinensis)* is the only species of microhylid frog to occur in Virginia, where it is mainly found in the southeastern and south-central counties. On several occasions, during the past 10 years or more, I have heard the distinctive calls of these small toads in southern Buckingham County at the location indicated here as well as in similar habitat about 0.85 km east-southeast of this site. More recently, I noted that no verified record for the species existed for Buckingham County according to records

maintained by the Virginia Herpetological Society and summarized in their online range maps for the species (www.virginia herpetologicalsociety.com/amphibians/frogs andtoads/eastern-narrow-mouthed-toad/ eastern_narrow-mouthed_toad.php, accessed 15 Aug 2020); I also found no records for the county in the online databases maintained by the Global Biodiversity Information Facility (www.gbif.org), VertNet (vertnet.org), or the Virginia Fish and Wildlife Information Service maintained by the Virginia Department of Wildlife Resources (vafwis.dgif.virginia.gov), all accessed 15 August 2020. To verify the occurrence of this species in the county, I recorded several individuals calling and am submitting a portion of one recording with this report (VHS Archive #598). The toads I recorded were initially heard calling at about 4 p.m. and were recorded between 8:18 and 8:34 p.m. local time. It had been raining for much of the day and light rain was falling when the recording was made. The toads were in a shallow ditch and an adjacent puddle at the edge of a pasture. Gray Treefrogs (*Hyla versicolor*) were also calling in the same immediate area and can be heard on some of the recordings of the narrow-mouthed toads.

C. Michael Stinson
437 Wildflower Lane
Dillwyn, VA 23936

***Gastrophryne carolinensis* (Eastern Narrow-mouthed Toad).** VA: Sussex County, Big Woods Wildlife Management Area. 19 June 2020. Paul Sattler and Jason Gibson.

Diet: The Eastern Narrow-mouthed Toad possesses a number of unique morphological and physiological traits as compared to other Virginia anurans. This species' short legs, pointed narrow head, a fold of skin on the head that can be moved forward to cover and protect the eyes, and ability to produce thick sticky mucus have been suggested as adaptations to myrmecophagy (ant eating) (Nelson, C.E. 1972. Systematic studies of the North American micohylid genus *Gastrophryne*. Journal of Herpetology 6: 111-137).

Although the diet of *G. carolinensis* has long been known to consist primarily of ants (Anderson, P.K. 1954. Studies on the ecology of the Narrow-mouthed Toad, *Microhyla carolinensis carolinensis*. Tulane Studies in Zoology 2: 15-46), species-level identifications of prey items are not common. A notable exception is the work of Deyrup et al. (2013. Ant species in the diet of Florida population of eastern narrow-mouthed toads, *Gastrophryne carolinensis*. Southeastern Naturalist 12(2):367-378) who extensively studied the diet of *G. carolinensis* in a native Florida scrub habitat. Deyrup and colleagues recovered a total of 5,135 prey items from 146 *G. carolinensis* stomachs, and ants made up the bulk of the diet at 95% of all food items observed. The 4,859 individual ants recovered in that study represented 43 species from 18 genera and 5 subfamilies. The remaining 5% of the diet (266 prey items) consisted of a variety of other arthropods, with mites (Acari) making up the largest bulk of the non-ant prey items consumed at 160.

To our knowledge, the diet of the Eastern Narrow-mouthed Toad in Virginia has not been previously studied. The purpose of this note is to provide a detailed account of the prey taxa found in the stomach of a single *G. carolinensis* from the Coastal Plain of Virginia.

On 19 June 2020, a dead adult Eastern Narrow-mouthed Toad was found in grass beside a dirt road at Big Woods WMA. The main tract of the Big Woods WMA consists of 2,208 acres of loblolly and longleaf pine forest managed by the Virginia Department of Wildlife Resources to restore open pine savanna habitat through prescribed burns and planting of longleaf pine. The animal was fresh and intact and collected to examine gut contents. After the stomach was dissected, the prey items were examined under a stereomicroscope and identified to the lowest taxonomic level possible.

Our examination of the *G. carolinensis* stomach revealed the presence of 19 prey items including 18 nearly intact ants (suggesting a recent meal) and a pair of beetle elytra. No other remains of the beetle prey were found rendering further identification impossible. The ants belonged to three species including *Tapinoma sessile* (Say) (9 specimens), *Lasius americanus* (Emery) (8), and *Nylanderia faisonensis* (Forel) (1) (Fig. 1).

The three ant species recovered in this study are among the most abundant and widespread ants in the Eastern United States and have a virtually statewide distribution in Virginia (Ivanov K., L. Hightower, S.T. Dash, and J.B. Keiper. 2019. 150 years in the making: first comprehensive list of the ants (Hymenoptera: Formicidae) of Virginia, USA. Zootaxa 4554 (2): 532–560). *Lasius americanus* and *N. faisonensis* are woodland inhabitants known to nest in soil, in leaf litter, inside nutshells on ground, in and under rotten wood, as well as under other cover objects. *Tapinoma sessile* is a highly adaptable opportunistic species that occurs in a great variety of wooded and open habitats including disturbed sites. The nesting sites of this species are as diverse as the habitats it occupies and may be in soil, under cover objects such as logs and stones, under loose bark, inside old nuts on the ground, in leaf litter, under rubbish piles, roofing tin, inside wall spaces, storage sheds, etc. All three species are known to possess powerful chemical defenses including pygidial gland allomones (*T. sessile*) and formic acid (*L. americanus* and *N. faisonensis*).

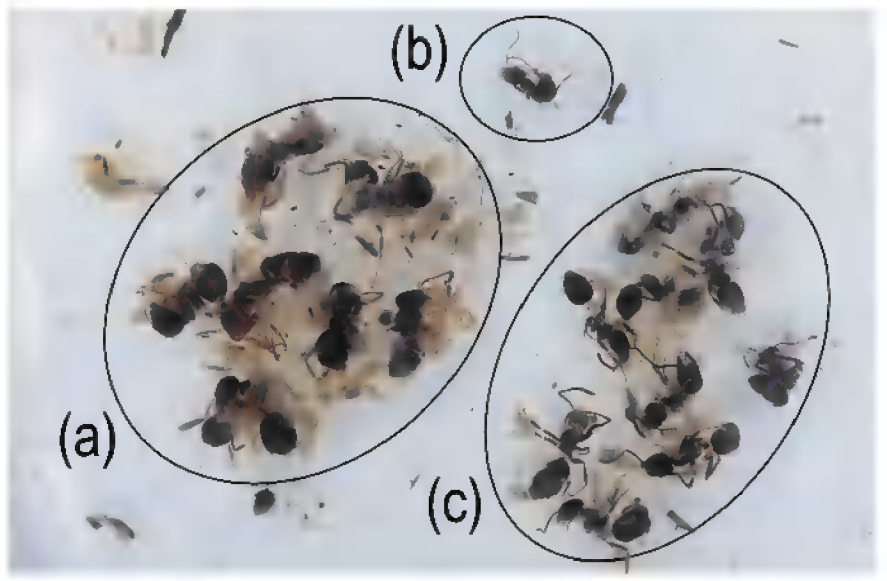

Figure 1. Ant prey items from the stomach of an adult *Gastrophryne carolinensis* collected at Big Woods Wildlife Management Area (Sussex Co., VA) (photo by K. Ivanov): **a**) *Lasius americanus*, **b**) *Nylanderia faisonensis*, and **c**) *Tapinoma sessile*.

Drawing conclusions based on prey items from a single stomach is premature, however, our data suggest that ants likely play an important role in the diet of the Eastern Narrow-mouthed toad in Virginia as they do elsewhere. It is worth mentioning that the three ant species found in this study were not recovered as part of the diet of *G. carolinensis* in Florida's Highland Co. (although *T. sessile* and *N. faisonensis* are known to occur in the area), thus adding

further data towards our knowledge of the diet of this unusual species.

Vouchers of all prey items are deposited in the Invertebrate Collection at the Virginia Museum of Natural History. This work was conducted under the DWR collecting permit #064948.

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***Hyla chrysoscelis* (Cope's Gray Tree Frog)** VA: Albemarle Co. (38°00'26.7"N; 78°22'41.4"W). 22 May 2020. Laura Bissett.

County Record: Cope's Gray Tree Frogs are wide spread throughout VA although reports are lacking in the mountainous counties along the border with West Virginia. On 22 May, 2020 Laura Bissett contacted Erin Chapman in order to identify some frog calls, and sent a video pointing to trees where the frogs were still audible. The species was identified as Hyla chrysoscelis, which had not been previously reported from Albemarle County. This video was submitted to the VHS as a voucher (Archive #583). The original recording was taken at 1:44 pm, but the frog was still calling in the video at 6:20 pm. The temperature was 23°C with 64% humidity. The individuals were calling from a stream surrounded by trees in a developing Keswick neighborhood. This species has been reported in many surrounding counties (Fluvanna, Louisa, Orange, Buckingham, and Augusta), so it is not unexpected that they are present in Albemarle.

Erin Chapman
Broadwater Academy
Exmore, VA 23350

Hyla chrysoscelis/versicolor (Cope's/Gray Treefrog) VA: Fairfax Co., North Lake Village (38.872331, -77.380874). 6 July 2020. Erin and Adaline Mazur.

Color variant: Amphibians coloration is created by light interacting with pigments created by dermal pigment cells called chromatophores. There are three major chromatophores found in the dermis of amphibians. These included the melano-phores (brown/black pigment producing cells), xanthophores/ erythrophores (yellow-red pigment producing cells) and the iridiphores (cells which produce pigment which reflect white light or specific wavelengths of light). When these chromatophores do not develop correctly or the pigment genes in the cells are mutated, the amphibian may exhibit an abnormal skin coloration. Color defects in the production of melanin include albinism (white skin and red eyes), leucism (white skin with normally colored eyes), melanism (very dark skin), hypomelanism (golden or beige skin with normally colored eyes, and piebaldism (patches of skin white and patches of skin with normal coloration) (Lucati, F. and A. Lopex-Baucelis. 2017. Chromatic disorders in bats: a review of pigmentation anomalies and the misuse of terms to describe them. Mammal Review 47(2): 112-123). An overproduction or underproduction of pigments from other chromatophores can cause many different color variations

including abnormally red skin and patches of blue skin. The naming of these skin coloration defects is difficult and often confused in the literature.

On 6 July, 2020 unusually colored Cope's/ Gray Treefrog tadpoles were observed amongst around five hundred normally colored tadpoles. These tadpoles were found in a drainage ditch in Fairfax County Virginia. The tadpoles were kept in captivity until metamorphosis. Two of the tadpoles had normally pigmented irises but the dorsal skin was a light orange/creme color (Figure 1 A), and the ventral belly skin was white (Figure 1 B). This coloration is consistent with the color defect called hypomelanism. These two tadpoles retained the abnormal coloration even after completing meta-morphosis. One tadpole had normally colored irises but lacked pigmentation on the dorsal and ventral skin (Figure 1 C, D). This coloration is consistent with the color defect called leucism. The tadpole had slower development than the hypomelanistic tadpoles and was observed listing to one side while being observed in an aquarium. When obtained, the leucistic tadpole had developed both hindlimbs. It was observed eating and possessed similar mobility to the other apparently normal tadpoles in captivity. However, over the course of two weeks in captivity if failed to progress through further stages of metamorphosis before dying abruptly on day 16.

Mutations of pigment genes and developmental defects of chromatophores are rare. Finding animals with abnormal coloration are also hard to find because these animals are more easily seen by predators and thus eaten. We encourage anyone who observes an abnormally colored reptile or amphibian to take photos of the animal's eye, ventrum, and dorsum and share these observations.

Figure 1. A and B. Hypomelanistic *Hyla chrysoscelis/versicolor* metamorph. C. Leucistic tadpole. D. Leucistic tadpole with normally colored tadpole.

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North Lake Village

***Hyla cinerea* (Green Treefrog),** VA: Powhatan Co., Jones Creek wetlands (37.5753, -77.7997). June 2011 – September 2020. James R. Reilly and Sarah J. Reilly.

Range extension: A large breeding population of Green Treefrogs has been observed calling each year beginning in early June 2011 in a beaver marsh along Jones Creek in Powhatan County. Within the marsh, the frogs have been primarily located in an approximately 5 hectare region of thick emergent vegetation dominated by yellow pond lily (*Nuphar advena advena*). This large, stable population confirms that the range of this species now extends westward into Powhatan County, which is located in the eastern Piedmont. Previous records from this county have been only lone individuals (Gibson 2001, Catesbeiana 21(1):12; Munford 2011, Catesbeiana 31(2):78). One author (JRR) lived adjacent to this marsh in the 1990s and is confident the *H. cinerea* population was not present at that time. Based on newly established populations of Green Treefrogs observed in Henrico County, Mitchell (2005, Catesbeiana 25(2):77-78) suggested that the Green Treefrog may be expanding from its historical range in the Virginia coastal plain into the eastern Piedmont and called for additional surveys west of the Fall Line. In addition to Powhatan County, recent county records for other eastern Piedmont counties also support this general pattern, including Goochland (Munford 2010, Catesbeiana 30(2):89), Amelia (Munford 2014, Catesbeiana 34(2):68), Lunenburg (Lewis 2017, Catesbeiana 37(2):123), and Mecklenburg (Munford 2014, Catesbeiana 34(2):68). Currently, the western edge of the Green Treefrog's range appears to run through the eastern Piedmont across southern and central Virginia, but remains confined to the coastal plain in Northern Virginia across Fairfax, Prince William, Stafford, and Spotsylvania counties. Audio recordings of the chorus made on July 1, 2011 and July 21, 2018, and a video recording of a calling male made on August 3, 2013 have been submitted to the VHS archives (#577).

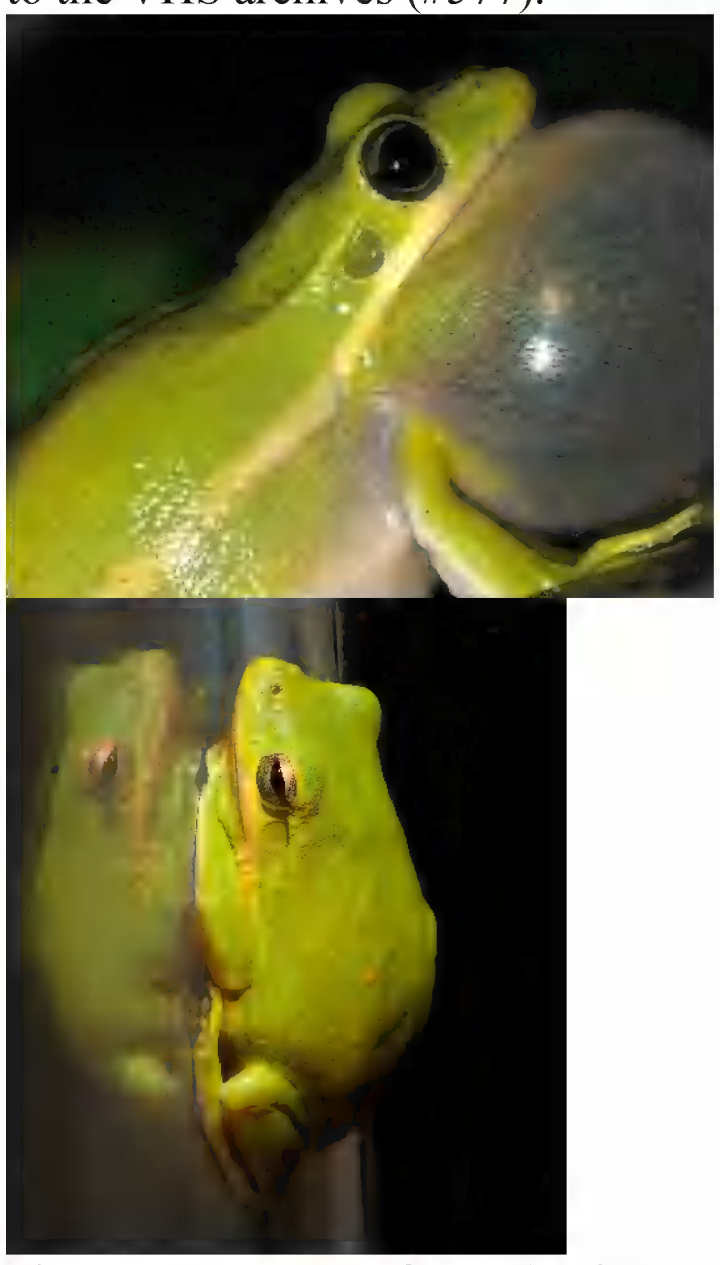

Fig. 1. Green Treefrogs (*Hyla cinerea*) in Powhatan County, VA, August 3, 2013. Photos by James Reilly.

James R. Reilly and Sarah J. Reilly
Powhatan, VA

***Hyla gratiosa* (Barking Treefrog).** Virginia, York County. 29 May 2020 Exact location intentionally withheld. Dane Conley and Chris Blake.

County Record: The Barking Treefrog (*Hyla gratiosa*) occurs in 15 counties and cities in Virginia: (Virginia Fish and Wildlife Information Service 2020) An observation was made in York County by Kurt Buhlmann in 1989. However, to the best of our knowledge, no voucher or published record of this observation is known to exist.

On 28 May 2020, at 10:34pm, while conducting an auditory survey for anurans in York County, a chorus of Barking Treefrogs (*Hyla gratiosa*) was heard and an audio recording created. To further verify this observation, a visual encounter survey was conducted on 10 July 2020, at 11:50 pm and within five minutes two individuals were photographed. The first individual was on an aquatic shrub approximately 10 cm above the water's surface. Water depth was about 1 meter and approximately 8 meters from the pond's edge. The second individual was approximately 2 meters above the water's surface in a small tree, the water depth was about 5 cm, and the frog about one meter from the pond's edge. The Barking Treefrogs at this site were not calling during the July 10th survey, most likely since there was no rain that evening. The pond was surrounded by mixed pine/hardwoods and has a diameter of about 60 meters. No fish were observed in this pond the two times it was surveyed. The pond is of conservation significance as State Threatened Mabee's Salamanders (*Ambystoma mabeei*) and State Endangered Tiger Salamanders (*Ambystoma tigrinum*) have been documented breeding in this pond. Therefore, this represents the first vouchered observation for Barking Treefrog in York County and the Grafton Ponds. Coordinates were intentionally withheld for the protection of the rare species that occur at this location. Photographs have been deposited in the VHS archives (#588) and (#589).

Dane Conley
Virginia Department of Wildlife Resources
3801 John Tyler Highway
Charles City, Va. 23030

Chris Blake
Sandy Bottom Nature Park
1255 Big Bethel Rd
Hampton, VA 23666

***Hyla versicolor* (Gray Treefrog).** VA: Craig County. Craig Creek Road, (37.353609, -80.292102). 6 August 2020. Joe Girgente & Hannah Wojtysiak

County Record: The evening of 6 August 2020 was a warm and wet evening and we decided to go road cruising to see what snakes and frogs might be out and active. On Craig Creek Road there was a large chorus of the Gray Treefrog (*Hyla versicolor*) calling. We stopped and made a recording of the chorus. Later, when we were checking records for Craig County, we realized there was no record of the Gray Treefrog (iNaturalist, FWIS Database, VHS Website). This observation thus provides the first record of *H. versicolor* in Craig County. This species is known from photos and recordings in neighboring Montgomery, Giles, Alleghany, and Botetourt Counties as well as two iNaturalist observations (one verified) from neighboring Roanoke County. It is no secret *H. versicolor* occupies habitat in most counties along the West Virginia border, but a lack of monitoring in Craig County has led to an absence of records from that locality. The damp roads, canopy, and leaf litter due to several isolated storms and rain showers during the day made the night-time conditions very good for Hylid activity while gathering fog and humid, mid-70s temperatures helped as well. An audio recording of the chorus was submitted to the VHS Archive (# 596) as a voucher for this record.

Joe Girgente
8500 Hunters Mill Road
Blacksburg, VA 24060

***Lithobates clamitans* (Green Frog).** VA: Highland County, small pond beside Cowpasture River Road (SR 614) at 38.2871, -79.4664. C. Michael Stinson.

County Record. Green Frogs are widespread in eastern North America, although Mitchell and Reay (1999, *Atlas of Amphibians and Reptiles in Virginia*) indicated that in Virginia "several counties lack voucher specimens," including Highland County, and the website of the Virginia Herpetological Society recently indicated that the species remained unverified there (https://www.virginiaherpetologicalsociety.com/amphibians/frogsandtoads/northern-green-frog/green_frog.php, 10 July 2020). The Fish and Wildlife Information Service database maintained by the Virginia Department of Wildlife Resources also listed the species as "Likely" but not confirmed in the county (https://vafwis.dgif.virginia.gov/fwis/ booklet.html?Menu=_.Occurrence&bova=020008&version=18453, 10 July 2020).

While working in Highland County in late May, June, and early July 2020, I heard Green Frogs on several occasions, and on 8 July I was able to obtain a recording of a few individuals calling at a small pond along Cowpasture River Road (SR 614) about 6.3 km southwest of Headwaters. A portion of that recording has been submitted with this note to verify the occurrence of the species in the county (Archive # 587). The weather at the time was warm and humid with partly cloudy skies. On the same date, I also heard a Green Frog calling east of Bullpasture River Road (SR 678) near its junction with SR 609, about 11.3 km southwest of where the recording was made, but was unable to record that individual. At the time of this report, three "Research Grade" observations of the species from Highland County had also been submitted to iNaturalist (https://www.inaturalist.org/observations?place_id=1373

&subview=table&taxon_id=65982, 10 July 2020). These records collectively suggest that although the Green Frog has previously been considered unverified in Highland County, members of the species can probably be found there with some regularity.

C. Michael Stinson
437 Wildflower Lane
Dillwyn, VA 23936

Lithobates clamitans (Green Frog) VA: Pittsylvania Co., 181 Samuel Court (36°41'32.04"N, 79°25'31.83"W). 2016, 2017, 2019, 2020. Jason D. Gibson.

Reproduction (Calling Dates, Egg Laying Dates, Clutch Size): The Green Frog is one of the most common and widespread anurans in Virginia. It is large and conspicuous with an easily recognizable call. The eggs however are difficult to distinguish from the American Bullfrog, egg harvesting and counting is tedious, and amplexus is rarely observed. Because of these characteristics much is known about the calling season for this species but less is known about egg laying and clutch size. The breeding (= egg laying) season for this species occurs over an extended period of time (Dodd, C.K. Jr. 2013. Frogs of the United States and Canada. Two Volumes. Johns Hopkins University Press, Baltimore, MD. 982 pp.). Breeding in Virginia has been documented from May to September for lower elevation sites and June through July in higher elevations in northern Virginia (Breven, K.A., D.E. Gill., and S.J. Smith-Gill. 1979. Countergradient selection in the green frog *Rana clamitans*. Evolution 22(2): 609-623.). Calling usually precedes egg laying. Tupper et al (2012. Patterns of frog and toad vocalization in Fairfax county, Virginia. Banisteria 39:34-46.) report calling dates for Fairfax County in northern Virginia from 5 April to 5 September. These dates are similar and consistent to calling dates reported by Mitchell (1986. Life history patterns in a central Virginia frog community. Virginia Journal of Science. 37:262-271.) for Chesterfield County in central Virginia. He reported calling dates from 22 April to 9 September. The literature for egg laying dates and clutch size however is generally lacking for Virginia. Mitchell and Pague (2014. Filling gaps in life-history data: clutch sizes for 21 species of North American anurans. Herpetological conservation and Biology 9(3): 495-501) reported clutch sizes for 21 of 27 species of anurans in Virginia but did not include any data for the Green Frog. Ernst et al (1997. The amphibians and reptiles of Fort Belvoir and northern Virginia. Bulletin of the Maryland Herpetological Society 33:1-62.) found a mean of 2,811 eggs and a range from 1,312 to 3,200 eggs from 10 masses counted in northern Virginia. This is the only report of clutch size that I was able to find for Virginia. The purpose of this field note is to document the calling dates, egg laying dates, and the clutch size for *Lithobates clamitans* at a south-central piedmont site in Virginia over a four-year period of time.

The study area for these observations include a small ephemeral stream (approximately .3 meter in width) weaving through a grass yard and two small man-made plastic frog ponds. Surrounding these two water habitats is a mature hardwood forest. From 2016 to September 2020 (excluding 2018) during the months of May through September, daily observations of calling and egg laying were recorded. The earliest calling date was 4 May 2020 and the latest calling date was 11 September 2017. Fifteen clutches of eggs were deposited during these four years and

occurred on the following dates: 31 May, 3 July, 14 July 2017, 14 July 2020, 18 July, 21 July (2016), 21 July (2017), 29 July, 4 August, 8 August, 16 August, 18 August, 24 August, 27 August, and 1 September. One clutch of eggs deposited on 14 July 2020 was collected and counted and found to contain 1,525 eggs. A second clutch of eggs deposited on 18 August 2020 was collected and counted and found to contain 5,732 eggs. The eggs were deposited as a surface film and often stuck to any aquatic vegetation adjacent to the film.

Despite looking for many years I have been unable to find amplexed pairs of this species which could be placed in buckets. This would be the ideal way to get more accurate clutch sizes. I encourage anyone with Green Frogs on their property to document egg laying dates and to try to get accurate clutch size counts. Collecting surface films of eggs and counting them is tedious but for this species this information would add much to our knowledge of how it reproduces.

Jason D. Gibson
Patrick Henry Community College
STEM Division
645 Patriot Avenue
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***Lithobates palustris* (Pickerel Frog).** VA: Buckingham Co. 437 Wildflower Lane, Dillwyn (37°24'59.1"N 78°26'17.2"W). 18 May 2020. C. Michael Stinson.

County Record: Upon entering the crawl space beneath my home during the early evening of 18 May 2020, I noticed a frog sitting on the leaf-covered dirt floor just inside the door. I commented to my daughter, who was with me, that it looked like a pickerel frog, and I took a few images with my phone. Reference to the photos later confirmed that the frog was indeed a pickerel frog, as the snout length is less than expected for a leopard frog species, the tympanum lacks a white dot, and a hint of the yellow coloring on the sides of the hind legs is visible. At the date of this observation, the Virginia Herpetological Society (VHS) website showed no confirmed record for pickerel frog in Buckingham County, though there were records for every surrounding county as well as several Research Grade reports for Buckingham on iNaturalist (see https://www.inaturalist.org/observations?place_id=2589&taxon_id=66002). In addition, a specimen from the Harvard Museum of Comparative Zoology (A-5378) collected by Emmitt Reid Dunn in 1919 from Buckingham County exists.

I have submitted a digital image of the frog to the VHS for verification (#581) of this report and so the documented distribution of this species can be clarified. It might be worth noting that the location where I found this frog, though artificial, somewhat replicates the twilight zone of a cave, a reported habitat for this species.

C. Michael Stinson
437 Wildflower Lane
Dillwyn, VA 23936

***Aspidoscelis sexlineata sexlineata* (Eastern Six-lined Racerunner).** VA: Sussex. 36.873075,-77.183482. 29 April 2020. Tim Songer

County Record: In late April, 2020, approximately ten *A. sexlineata sexlineata* were found adjacent to Chub Sandhill Trail in the Chub Sandhill Natural Area Preserve in Sussex County. One juvenile was captured and photographed near a small pond at the northern end of the trail. The weather for that day was partly cloudy with a high of 28ºC (82°F) and no precipitation. The habitat consisted of low sandhills and riparian wetlands as well as sandy upland flats. The species was observed mostly in the sandy upland flats but was also observed in the low sandhills along the trail. This record helps fill in the gap between Prince George County to the north and Southampton and Greensville Counties to the south. However, the species has not been observed in Dinwiddie County to the northwest, nor in Surry County to the northeast. A digital photo was submitted to the VHS Archive as a voucher (#571).

Tim Songer
Lynchburg, VA

***Aspidoscelis sexlineata sexlineata* (Eastern Six-lined Racerunner)** VA: Sussex County, Chub Sandhill Natural Area Preserve (36°52'10.55N, 77°10'54.205'W) 26 June 2020. Kim Cook and Diane Girgente.

County Record Confirmation: While hiking at Chub Sandhill Natural Area Preserve, Kim Cook and Diane Girgente observed an Eastern Six-lined Racerunner scurrying across the sandy road. A photo was taken at 11:30 a.m. with a pocket camera from approximately 2.5 meters (VHS Archive # 572). Of note, the lizard appeared to be infested with parasites (in the photo, visibly red along the the abdomen and base of tail.) Roughly a dozen other individuals of this species were noted/observed through binoculars during the hike along the road between 11:30 a.m. and 1:45 p.m. The weather was sunny, the temperature approximately 30° C. This is only the second report of the Eastern Six-lined Racerunner in Sussex County (see previous Note), and as such serves to fill the data gap between existing records of the species in the surrounding counties of Prince George, Southampton, and Greensville. Given their documentation in neighboring counties, and their preference for open, sandy habitat like that found in Chub Sandhill NAP, the presence of the species in Sussex County is expected.

Kim Cook
1521 Page Road
Powhatan, VA 23139

Diane Girgente
P.O. Box 422
Powhatan, VA 23139

Ophisaurus attenuatus longicaudus **(Eastern Slender Glass Lizard).** VA: Surry County, 2.4 mile South of the intersection of State Route 10 and State Rt. 617 NAD 83, UTM Zone 18N, S 343345.90, E 4104805.43, 16 May 2009.

County Record: The range of the Eastern Slender glass lizard is known from the eastern third of the state of Virginia (Mitchell, J. C., and K. K. Reay, 1999. Atlas of Amphibians and Reptiles in Virginia. Special Publication Number 1, Virginia Department of Game and Inland Fisheries, Richmond Virginia. 122 pp.). Roger Henry deRogeot (1964, Virginia Herpetological Society Bulletin 40:3-6) stated that an adult had been captured at Pipsico Scout Reservation in Spring Grove, Surry County. The Virginia Herpetological Society website shows that this species is known or likely in Surry, Virginia but there is no observation point for the county (VHS web site accessed 29 Dec 2019 https://www.virginiaherpetologicalsociety.com/reptiles/lizards/lizards_of_virginia.htm)

Here I report a county record for an adult Eastern Slender Glass Lizard found south of the James River on the Coastal Plain. It was a road killed adult male. The Forest on both sides of the road was loblolly pine plantations. Digital photos of the specimen have been deposited in the VHS archives (#590).

Christopher Todd Georgel
The Urban Herpetologist Pest Control and Wildlife Removal
4567 Darbytown Road
Richmond, VA 23231

Scincella lateralis **(Little Brown Skink)** VA: Bedford County, Forest, private residence (37.385414° N, 79.299945° W). 5 October 2018. Ted Williams and Kyle Harris.

County Record: In the morning of 5 October 2018, one of the authors (TW) was moving some empty boxes from his driveway which borders a woodlot and conservation easement in Bedford County, VA. A single little brown skink (*Scincella lateralis*) was found by TW and photographed for identification. KH and TW later found additional *S. lateralis* along with the more abundant common five-lined skink (*Plestiodon fasciatus*). Digital photographs were obtained and represent the first vouchers for Bedford County. Digital photos were placed in the VHS Archive (#603) as a voucher.

Ted Williams
308 Eastwind Drive
Forest, VA 24551

Kyle Harris
Liberty University
Dept. of Biology
Lynchburg VA 24515

Figure 1. *Scincella lateralis*

Overton McGehee
Palmyra, Va.

Chelydra serpentina **Snapping Turtle):** VA, Fluvanna County Near Bybee, (37° 55' 28.9" ; -78° 12' 22.6"). 17 April 2019. Overton McGehee

County Record: Snapping Turtles are found in the rivers, creeks and ponds of Fluvanna County. They live in the James River, The Rivanna River, Byrd Creek and other large creeks, and in many farm ponds. I see them most often near the Rivanna River. They have been reported in the adjacent counties of Goochland, Cumberland, Buckingham, and Albemarle, but not Fluvanna.

On 17 April 2019 I noted a snapping turtle, up the hill from a farm pond. I took several photos of the turtle and sent them to the VHS. One has been entered into the VHS Archive (# 584) as a voucher. This marks the first record of a Snapping Turtle in Fluvanna County.

Chelydra serpentina **(Snapping Turtle).** VA: Gloucester County. Beaverdam Swamp near Gloucester Courthouse: 37.425026, -76.529452. 20 August 2020. Quinn Pullen and Alexandria Marquardt.

County Record: A Snapping Turtle was observed on 20 August 2020 in Gloucester County. Snapping Turtle records exists for neighboring King and Queen County to the northwest, but not Middlesex and Matthews Counties to the north and northeast, respectively. Due to the widely abundant distribution of this species, it is likely a matter of documentation, rather than range expansion producing the void in the Snapping Turtle's distribution in Gloucester County. An individual was observed on the east shoulder of Roaring Springs Rd between Holly Springs Road and Tranquil Drive, moving quickly east towards a forested area. The individual appeared healthy and active, with a carapace length approximately 25-30

cm, and it's back covered with duckweed and algae. The observation was made at approximately 1900h nearing dusk. The weather was clear and warm, approximately 27-32ºC.

Quinn Pullen and Alexandria Marquardt
7010 Belroi Rd
Gloucester, VA 23061

***Chelydra serpentina* (Common Snapping Turtle): VA** Rappannock Co. Washington. 5 May 2020. Constance Bruce.

Confirmation of Record: The Common Snapping Turtle is found throughout Virginia, in many freshwater sources. There are only about a dozen counties in the state for which there is not a vouchered record. Rappahannock and Culpepper Counties in Northern Virginia are two such counties for which the VHS website and the DWR FWIS database lack records. However, there is a juvenile found dead on the road from Shenandoah National Park in the Carnegie Museum of Natural History (#146228) dated 29 July 1988, that seems to have escaped notice.

On 5 May 2020, I noticed a large Common Snapping Turtle crossing our property. There is a nearby pond to or from which the turtle may have been going. I took some digital photos of the animal and sent them to the VHS Herp ID website for identification and was informed the animal was a snapping turtle and there was no record from Rappannock County. This report helps fill in one more county for which the Snapping Turtle is known, and is conformation of the Carnegie specimen. This leaves only Culpeper County without an official vouchered record in northern Virginia. A digital photograph was submitted to the VHS Archive (#586) as a voucher.

Constance Bruce
Director Special Projects
NY WILD Film Festival

Pseudemys rubriventris **(Northern Red-bellied Cooter)** VA: Frederick County. Lake Holiday (39.3105394 -78.3255129). 6 July 2020, Yona Britto

County Record: The Northern Red-bellied Cooter has a wide distribution in eastern and northern Virginia, with a few introduced populations in central Virginia. In northern Virginia, it is found in most counties, with a notable exception in Frederick, the most northern of counties. This report fills this gap in the distribution.

On 6 July 2020, I was at Lake Holiday, a private lake in Frederick County when a large turtle was observed swimming in the water. The turtle was captured by hand and taken to the beach to examine and photograph. When identified, the turtle was a Northern Red-bellied Cooter (*Pseudemys rubriventris*). This is the first record for Frederick County, as it is not listed in the DGIF's FWIS Database, the VHS Website, or Mitchell and Reay (1999. Atlas of Amphibians and Reptiles in Virginia. Special Publication No. 1 Virginia Department of Game and Inland Fisheries, Richmond VA 122 pp.). It has been reported from all three counties south of Frederick in Virginia, and Green and Pauley (1987. Amphibians and Reptiles in West Virginia. University of Pittsburg Press, Pittsburg PA 241 pp.) report that Berkeley County just north of Frederick, is only one of three counties in West Virginia where the turtle has been reported. Digital photographs were submitted to the VHS Archive (# 571) as a voucher.

Yona Britto
Cross Junction, VA

***Kinosternon subrubrum subrubrum* (Southeastern Mud Turtle)** VA: Cumberland County: Cumberland State Forest (37.53344, -78.29863), 17 March 2020, and Ca Ira Road (37.47076, -78.3562), 26 June 2020. Ty Smith and C. Michael Stinson.

County Records: Virginia is home to two species of *Kinosternon* mud turtles, *K. subrubrum*, the eastern mud turtle, and *K. baurii*, the striped mud turtle. Of the two, *K. subrubrum* is more widespread, with the nominate subspecies, the Southeastern Mud Turtle, being known from a majority of the counties and independent cities east of the Blue Ridge, while *K. baurii* is less common and is known mainly from Coastal Plain counties south of the lower Potomac River. On 17 March 2020, Smith found and photographed (Archive #607) a living Southeastern Mud Turtle in Cumberland State Forest east of the Willis River and south of its confluence with Bear Creek at approximately N 37.53344, W -78.29863. On the afternoon of 26 June 2020, Stinson found and photographed (Archive #608) a small dead turtle on Ca Ira Road (state route 632) in Cumberland County, and later examination of the photos showed that turtle to be a Southeastern Mud Turtle as well. These two sites are separated by approximately 8.8 km (5.5 miles). Information from the Virginia Herpetological Society (VHS) website's page for the species (https://www. Virginiaherpetologicalsociety .com/reptiles/turtles/eastern-mud-turtle/ eastern_mud_turtle .php) as well as a search of reports on VertNet (http:// portal.vertnet.org/ search?q=Kino-sternon +subrubrum) and the Virginia Fish and Wildlife Information Service (https: //vafwis.dgif.virginia.gov/fwis/?Menu= Home), all accessed 27 Oct 2020, show no documented reports of *Kinosternon subrubrum* from Cumberland County. Smith's record from 17 March has been submitted to iNaturalist (https://www. inaturalist.org/observations/40164312), Stinson's record from 26 June has been submitted to Herpmapper (https://www. herpmapper.org/record/327267), and a digital image of each individual is included as documentation with this report for VHS records. Given previous records of *K. subrubrum* for several nearby counties, the occurrence of this turtle in Cumberland County is not extraordinary, but we are documenting it here in order to define more thoroughly the range of the species in Virginia.

Ty Smith
311 Hightower Road
Green Bay, VA 23942

C. Michael Stinson
437 Wildflower Lane
Dillwyn, VA 23936

Terrapene carolina carolina **(Woodland Box Turtle)** VA: City of Charlottesville near intersection of Melbourne Road and John Warner Parkway on McIntire Botanical Garden site August 19, 2019. Carol Carter.

An adult male Box Turtle, with an estimated carapace length of 11.5 cm (4.5inches), was found at 09:10h in a muddy tire rut while walking the McIntire Botanical Garden site. The temperature was approx. 24 ºC (75ºF) and climbing, and the spot was shaded.

The turtle was examined, appeared to be healthy, determined to be a male and released to the same spot. He quickly moved to cover.

According to the Virginia Herpetological Society county/city records of August 19, 2019, *Terrapene c. carolina* has not previously been recorded in the City of Charlottesville although it has been recorded in neighboring Albemarle County.

A digital photograph of the specimen was submitted to the VHS archives. (Voucher # 602)

Carol S. Carter
852 Redlands Farm
Charlottesville VA 22902

Terrapene carolina carolina (Woodland Box Turtle) VA: City of Lexington, Uncas Trail (37.789685, -79.418952) 6 September, 2020. Erin C. Anthony and Matt Anthony

City Record: An adult female box turtle was observed sitting in the leaf litter 2 m away from the trail. She was not disturbed or handled in anyway. This marks only the third herp species recorded for the VHS database in the City of Lexington. A photograph was submitted to the VHS database (#605) as a voucher. The Uncas trail provides the most hope for species biodiversity and new records within the city.

Erin C. Anthony
Broadwater Academy
Exmore, VA 23350

***Terrapene carolinensis carolinensis* (Woodland Box Turtle).** VA: Prince Edward Co., Briery Creek Wildlife Management Area (37.203904 N, -78.4516 W). 14 April 2020. Alyssa Jones, Tom Jones, and C. Michael Stinson.

Early Mating: Based on an observation by C. H. Ernst from Fairfax County, the Virginia Herpetological Society's website reports 22 April as the earliest known mating date for *Terrapene carolinensis* in Virginia (https://www.virginiaherpetologicalsociety.com/reptiles/turtles/eastern-box-turtle/eastern_box_turtle.php, accessed 28 May 2020). While doing field work at Briery Creek Wildlife Management Area in Prince Edward County during the late morning of 14 April 2020, we happened upon a pair of Woodland Box Turtles mating. The turtles were in a flat, damp, grassy area formed by excavation and grading during the construction of Briery Creek Lake. We observed the pair for a few minutes and took several photographs, one of which is included here (VHS Archive #592). They remained in copula during the full time of our observation. This appears to be the earliest reported mating date for the species in Virginia by more than one week.

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Huntington, WV 25755

Tom Jones
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C. Michael Stinson
Div. of Nursing, Allied Health, and Natural Sciences
Southside Virginia Community College
Keysville, VA 23947

***Diadophis punctatus edwardsii* (Northern Ring-necked Snake): VA.** Brunswick County, 2344 Rawlings Rd. Rawlings. 12 July 2020. Beth Lowery.

County Record: The Ring-necked Snake (*Diadophis punctatus*) is found throughout Virginia. The Northern Ring-necked Snake is found in the western two-thirds of the state and the southern in the south-eastern corner, with a wide zone of integration throughout the outer Piedmont. Neither subspecies has been reported from Brunswick County to date. The northern subspecies, *Diadophis punctatus edwardsii* has a complete neck band and a solid yellowish belly. The southern subspecies *Diadophis punctatus punctatus* has a broken neck band and a series of dots or half-moons on each ventral scute. Intergrades with intermediate morphologies are found in central Virginia.

On 12 July 2020, we were cleaning up some brush which had accumulated by the side of a farm shed. The area was shady and moist. In moving the brush, we found a small black snake with a yellow band around the neck. Photos were taken before the animal was released. When the photos were sent to the VHS website for identification, we were told the snake

was a Northern Ring-necked Snake, and neither the northern or southern had been reported for Brunswick County. This snake, and another found several weeks previously, both had the complete neck band and a solid yellow belly. A photograph was submitted to the VHS Archive (#587) as a voucher for this species. The find helps fill the gap between surrounding counties

Beth Lowery
2344 Rawlings Rd.
Rawlings, VA

***Heterodon platirhinos* (Eastern Hog-nosed Snake).** VA: Richmond Co. (37.98448, -76.84873). 20 June 2020. Vasa Clarke.

Confirmation of Record: A single live Eastern Hog-nosed Snake was observed curled up in a bird's nest, approximately a meter above the ground. Digital photographs were sent to the VHS for species identification, and it was identified as an Eastern Hog-nosed Snake. I was informed the species had not yet been officially documented in Richmond County as there were no records in the DGIF's FWIS database or the VHS Website. This observation fills a gap within its reported distribution in Westmoreland County to the north and Lancaster to the south. It has not been reported in Essex County to the west, or Middlesex to the southwest. There is an older record for the Hog-nosed Snake in Richmond County in the Carnegie Museum of Natural History (#122929) from May 1986. This record was apparently missed when The Reptiles of Virginia (Joseph C. Mitchell, 1994. Smithsonian Institution Press, Washington, D.C. 352pp.) was produced. With this report, the Eastern Hog-nosed Snake has now been observed in every county within the Northern Neck.

Additionally, its presence in a bird's nest is somewhat unusual behavior. It is not impossible that this particular snake varied its typically amphibian-heavy diet. More likely, given the lateness of the season, the nest was already empty, and this particular specimen used it as a safe place to rest.

A digital photograph (#582) was deposited in the VHS Archive.

Vasa Clarke
Goochland, VA 23238

***Lampropeltis getula* (Eastern Kingsnake):** VA, Nelson County, 525 Glass Hollow Rd. Afton, 10 June 2020 Brian McDermott.

County Record: On 10 June 2020, I found an adult Eastern Kingsnake entangled in the bird netting surrounding a garden plot at my home. After relying on the VHS's website to identify the snake and learn that it is harmless and non-venomous, I cut the snake free, took some photographs, and released the snake in the woodlands surrounding my home. I also learned from the website that there had not been any reports of the snake being observed in Nelson County so I sent several of the photos to the VHS to confirm the identity of the snake and I was informed there were no records of the Eastern Kingsnake in Nelson County. They have been found in many of the surrounding counties including Albemarle, Amherst, Augusta, Bedford, and Buckingham Counties, so the presence in Nelson is not unexpected. This record is the first report of the Eastern Kingsnake in Nelson County. A digital photograph was submitted to the VHS Archive (#585) as a as a voucher.

Brian McDermott
525 Glass Hollow Rd
Afton, VA 22920.

***Opheodrys aestivus* (Northern Rough Greensnake)** VA: Spotsylvania County, Patriot Park (38.1996, -77.5337), 21 August 2020 Tim Manley.

County Record: The VHS has confirmed occurrences of the Northern Rough Greensnake in 95 Counties/ Cities of the Commonwealth. These occurrences include all the Counties surrounding Spotsylvania. However, until 21 August, there was no record for Spotsylvania County. While walking in Patriot Park a Northern Rough Greensnake, of about 0.3 m. was found dead along the cement sidewalk near the ball fields. The snake had already turned blue, but was identified when photos were submitted to VHS (Archive #606). Weather in Spotsylvania County in the 5 days prior to the finding had been 29-32°C, and overnight lows of 18-21°C. Rain accumulation was about 1 cm including 0.05cm the morning of the discovery. Also, the Park ballfield lawns were cut in the past five days disturbing the grounds.

Tim Manley
Germanna Point

Regina septemvittata **(Queensnake),** VA: Powhatan Co., Jones Creek wetlands (37.5743, -77.8038). June 30, 2018 - April 28, 2019. James R. Reilly, Sarah J. Reilly.

County Record: On June 30, 2018 at 5:30 PM, a small *R. septemvittata* was observed basking on the roots of a decaying tree stump that protruded from the water along the south bank of Jones Creek. At our approach, the snake darted into the water and hid among the roots, with only its head breaking the surface (Fig. 1a). The creek in this location was approximately 5m wide, and 45cm deep, with a firm sandy bottom and relatively few rocks. Until a few years before, beaver dams in this section of the creek kept this area much deeper and slower. The next year on April 28, 2019 at 4:00 PM, a second individual was observed at the water's edge approximately 450 meters further downstream from the first location, where the creek is slower and more muddy (Fig. 1b). Powhatan is near the eastern edge of this snake's range, and it has not been previously reported from this county (Mitchell and Reay 1999, Atlas of Amphibians and Reptiles in Virginia. Special Pub. No. 1, VDGIF. Richmond, VA: 122pp.; Gibson 2001, Catesbeiana 21(1): 3-28) but has been reported in all surrounding counties except Amelia to the south. Digital photographs have been submitted to the VHS archives (#579-580).

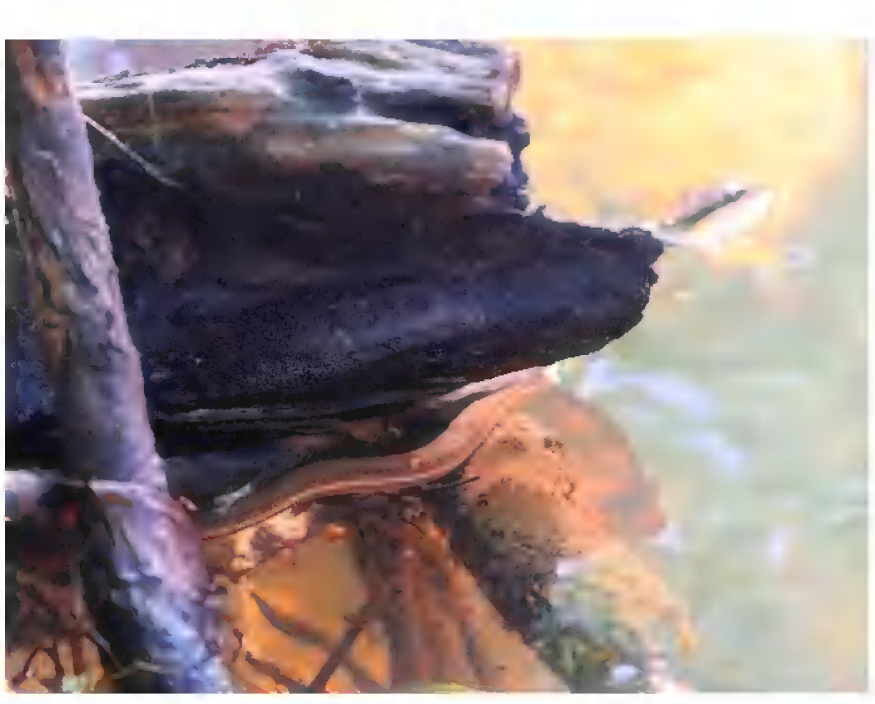

Fig. 1. Queensnake Regina septemvittata in Powhatan, VA. June 30, 2018 and April 28, 2019. Photos by James Reilly.

James R. Reilly and Sarah J. Reilly
Powhatan, VA

***Regina septemvittata* (Queen Snake):** VA. 1134 Ardmore Dr. Lynchburg, 14 November 2020, Nancy Sattler

Late Activity: The Queen Snake, *Regina septemvittata*) is a common snake found along rivers, streams and creeks in the Piedmont and scattered locations in southwestern Virginia. Its association with flowing water is tied to its unusual diet of freshly molted crayfish. There is a small creek down the side of our property which has water flowing for most of the year, except during summer droughts. We have frequently seen Queen Snakes, both adults and young, along the creek during the summer months when they are apparently foraging. On 14 November 2020, we were doing yard work in a garden area bordering the creek when I observed a mostly submerged Queen Snake in the creek. I pointed it out to my husband, who confirmed the identity. We watched the snake, undisturbed, for

several minutes while it went upstream not quite a meter, then disappeared into a hole or cutting under the bank. The weather on 14 November was unusually warm (17°C; 63°F), the snake was observed during the warmest part of the day (13:30 h), and the bank along which the creek flows is south facing. For several days prior to the observation, the temperature had been even warmer, and tropical storm Eta had contributed more than four inches of rain. Mitchell (1994, The Reptiles of Virginia. Smithsonian Institution Press, Washington D.C. 352 pp.) lists the activity period for the Queen Snake as 21 February to 10 October from museum records. This observation extends the late activity by more than a month.

Nancy and Paul Sattler
Lynchburg VA

***Thamnophis saurita saurita* (Common Ribbonsnake),** VA: Powhatan Co., Jones Creek wetlands (37.5747, -77.8001). June 28, 2018 - April 7, 2020. Sarah J. Reilly and James R. Reilly.

County Record: On June 28, 2018 at 12:50 PM, a *T. saurita* was observed about four feet above the ground in an autumn olive bush (*Elaeagnus umbellata*) on an upland point of land about 10m from the south bank of Jones Creek (Fig. 1a). Around this point of higher land, Jones Creek backs up into a large, open marsh maintained by beaver dams. On April 7, 2020 at 3:10 PM a second individual was observed resting in a trail about 30m south of the original observation (Fig. 1b). This species has not been previously reported from Powhatan County (Mitchell and Reay 1999, Atlas of Amphibians and Reptiles in Virginia. Special Pub. No. 1, VDGIF. Richmond, VA: 122pp.; Gibson 2001, Catesbeiana 21(1): 3-28), although it has been reported from all surrounding counties except Goochland to the north. Digital photographs have been submitted to the VHS archives (#578) as a voucher.

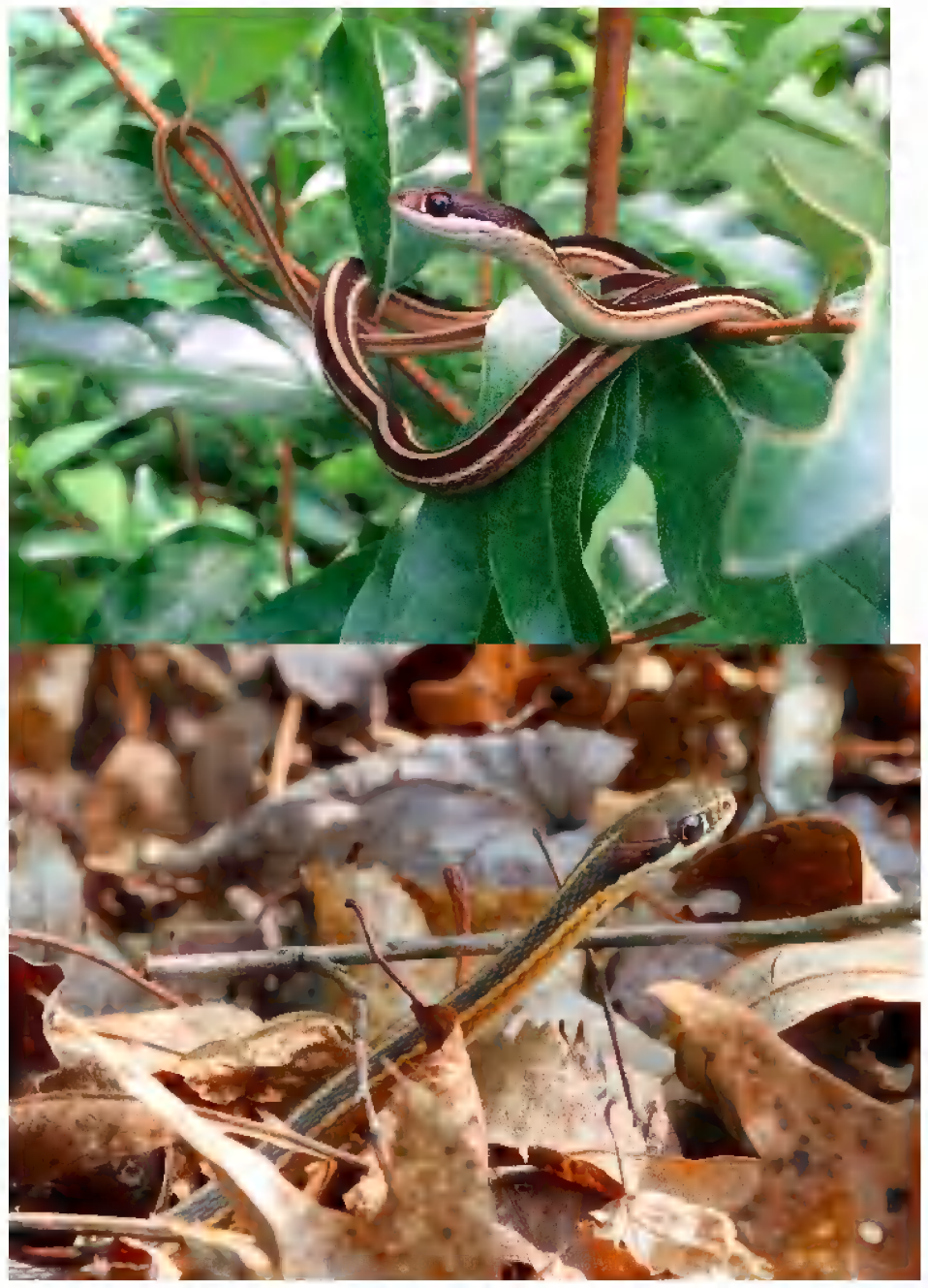

Fig. 1. Common Ribbonsnake (*Thamnophis saurita saurita) in Powhatan, VA. a) June 28, 2018 Photo by Sarah Reilly. b) April 7, 2020 Photo by James Reilly.*

Sarah J. and James R. Reilly
Powhatan, VA

***Virginia valeriae valeriae* (Eastern Smooth Earthsnake)** VA: Frederick County. (39.3222612 -78.3250787). 17 July 2019 Yona Britto

County Record: The Eastern Smooth Earthsnake (*Virginia v. valeriae*) has a widely scattered reported distribution in Virginia. Most records are from the Coastal Plain, but scattered records exist for the Piedmont and some counties along the western border. This is a small secretive snake, not commonly encountered unless one is looking for them under rocks. This report is a new record for Frederick County in far northern Virginia. In northern Virginia the Eastern Smooth Earthsnake is documented from Clarke and Shenandoah Counties to the south, and in Hampshire and Hardy Counties WV to the west, so this record helps fill the gap in northern Virginia.

On 17 July 2019, I was pet sitting for someone. Since I cannot resist flipping good cover objects I lifted several flat walking stones next to a shed. Under one I found two adult Smooth Earthsnakes. Both appeared healthy and had good body condition. It had rained recently. I didn't realize they weren't documented for Frederick County until I looked at the VHS map recently. I've seen one other photo of this species from the same neighborhood. A digital photo was submitted to the VHS Archive (# 591) as a voucher for this observation.

Yona Britto
Cross Junction, VA

***Virginia valeriae valeriae* (Eastern Smooth Earthsnake).** VA: Goochland Co. (37.590005, -77.6452068). 22 May 2020. Vasa Clarke.

County Record: A single deceased adult snake was found at the side of a local road. The body was somewhat stiff to the touch; a small quantity of viscera rendered it stuck to the pavement. Based on my typical walking pattern, I estimate this snake was dead for approximately twenty-four hours.

Digital photographs were sent to the VHS for species identification, and it was identified as an Eastern Smooth Earthsnake. The species has been documented in six of the surrounding seven counties, but not in Goochland itself. The observation thus helps confirm the continuity of the snake's range in Central Virginia. A digital photograph was deposited in the VHS Archive (#604) as a voucher.

Vasa Clarke
Goochland, VA 23238

Virginia Herpetological Society
Virtual Fall Business Meeting, 12/6/2020
Minutes of Meeting

Travis Anthony, President of the Virginia Herpetological Society (VHS), opened the meeting at approximately18:10 h. EST and provided the agenda for the meeting. VHS Executive Committee Members (Ex-Com), Erin Anthony, Yona Britto, Mike Clifford, Matt Close, Jason Gibson, Bonnie Keller, Mark Khosravi, Nell Koneczny, Matt Neff, Dave Perry, Paul Sattler, Megan Thomas, Susan Watson and John White also participated in all or part of the meeting.

Old Business

1. Voting on returning Executive Committee members

Travis Anthony indicated he was not clear on what the rules are for voting on returning Executive Committee members (Ex-Com). Mike Clifford, VHS Education Committee Chair, indicated this is one of the many things we need to consider when we revise the VHS Constitution and By-Laws.

2. Virtual Fall Meeting Summary

Travis Anthony summarized some of data from the virtual Fall Meeting for both the morning and afternoon sessions. Peak viewership totaled 62 viewers in the AM (pre-lunch) session with 228 one-minute streaming views. Total viewers reached was 3,000. Peak viewership totaled 48 viewers in the PM (post-lunch) session with 211 one-minute streaming views. Total viewers reached by the end of the meeting was 8,900. Sixty-two percent of AM and 69% of PM viewers were VHS members. The gender participation rate was 46% men, 52% women and 2% unknown (most likely non-binary) in the AM session, and 42% men, 54% women and 4% unknown in the PM session. Twenty-five percent of viewers were 65 years or older while only 4% were in the 18-24 age range. Sixty-two percent of AM and 69% of PM viewers were from Virginia but viewers from Maryland, Texas, California, Arizona, Pennsylvania, Illinois, Mississippi, Florida, North Carolina, South Carolina, and England also participated. The AM Google meet included 19 presenters and VHS members and the PM Google meet included 12. Thirteen VHS members and presenters hung out during lunch break while 3 visited the pet herp room and 3 visited the Virginia herp room. The Fall Meeting survey report was previously emailed to the Ex-Com and Travis Anthony highlighted some of the survey results: There were 26 survey responders, 22 VHS members and 4 non-members. 88.4% of the respondents viewed 4 or more of the presentations. The age category of 45+ represented 57.6% of survey responders and 16% (4 individuals) had an auditory disability and 4% (1 individual) had a cognitive or learning disability. Twelve or 46.2 % found the captions helpful or most helpful. Four or 15.4% used ASL interpretation. 53.8% rated the enjoyment value at the highest rating of 5 and 11.5% gave it a 4. Eighty-eight percent rated both the scientific value and the presenters at either 4 or 5 and there were no poor ratings for any of them. Breaks were viewed favorably by 76.9%. Community hangouts received more mixed results with 42.3% rating these at 4 or 5 and the photo contest was viewed favorably by 57.7 %. Travis also shared some of the feedback, favorable comments and suggestions for future improvements received from the surveys. One of the presenters, stated this was the best virtual meeting he had ever participated in. All the presenters praised VHS organization, planning and accessibility access. Another presenter, who has an auditory impairment,

has had difficulty participating in some previous conferences. Bonnie Keller, VHS Newsletter Editor, had a Facebook dialogue with Wolfgang Wuster, who was very complimentary about the meeting. Graphic recordings of each presentation are being reviewed and will be posted on the event website and on Facebook. Captions are being edited and will be uploaded to the VHS YouTube Channel. Presenters' slides are available on the event website and permission for re-use has been received. Two new VHS annual memberships and one lifetime membership were received as a result of or just prior to the meeting. Mike Clifford asked how many donations were received as a result of the meeting. Matt Close, VHS Treasurer, said Network for Good handles Facebook donations and it would not be clear how donations VHS received until we receive a check from them, which is typically submitted quarterly. However, after the meeting, VHS did receive $200 donations from 3 donors via PayPal although the reasons for the donations was not specified. Travis Anthony suggested the virtual Fall meeting was a cool and successful project but hoped VHS would be able to meet in person for the next business meeting. Virtual presentations like the Fall Meeting and the recent Chesterfield County snake presentation by Larry Mendoza, VHS Regulatory Affairs Chair, could supplement VHS education efforts.

Committee Reports

1. Newsletter

Bonnie Keller, VHS Newsletter Editor, indicated that the recent Newsletter that went out was positively received. As herp ID requests and stories are received, Bonnie has been seeking permission to use the photos/stories for Newsletter and has always received permission. However, sometimes it takes several weeks for permission to be granted. Bonnie suggested, it might help speed up the process to add language to the ID request form granting permission to use. The next Newsletter should go out on time and Bonnie has recruited two "Kids Editors" who are enthusiastic to provide their perspective in the next issue. VHS membership participation in creating material for the Newsletter is also encouraged.

2. Catesbeiana

Paul Sattler, VHS Journal Editor, reported that the Fall 2021 edition is nearly complete. The Sky Meadows State Park Survey has been completed and a second paper is in final editing. There are an unusually large number of field notes that will be included, possibly related to COVID-19. Once the Presidents Corner, Treasurer's Report and Fall Business Meeting Minutes are received the Fall edition will be published. Paul indicated there is no material yet for the Spring 2021 edition and there are no pending survey results to publish. Hopefully, some new material will develop by then.

3. Permits

Susan Watson, VHS Permits Committee Chair, reported that the Exhibitors Permit expired on October 31 and that she expected to complete the new permit within the next couple of weeks. With COVID-19 the expiration of this permit did not result in any issues. The Scientific Data Collection permit is a two-year permit that is valid for 2021. Susan will update this permit with survey site and other information as VHS 2021 survey plans firm up. The required data submissions for the 2020 permit year are probably limited to photographs as no VHS field surveys were conducted.

4. Education

Mike Clifford, VHS Education Committee Chair, submitted the annual Education

Committee Report for the period October 2019 to October 2020 to the Ex-Com prior to this meeting. Threats from COVID-19 posed many challenges to the Education Committee during the reporting period. There were some highlights. In November 2019 a VHS Educational Presenters Committee was formed to handle the increasing number of requests for live presentations and exhibition events. Mike was able to teach the herpetology class to 25 trainees of Pocahontas Virginia Master Naturalists (VMN) on March 7 and in July performed in a video presentation about the Northern Cottonmouth in Virginia in a segment of the "Wonder Project' by Virginia Cooperative Extension agents. Larry Mendoza, Ana Sparks and Travis Anthony represented VHS and exhibited several captive species of amphibians and reptiles at the annual Science Night at Reynolds Community College in Henrico on March 11. Travis and Ana also presented a virtual herpetology class, including captive snakes, to 12 members of the Rivanna VMN on March 25. Susan Watson conducted presentations with live animal exhibits to the James River, Historic Southside and Riverine VMNs on November 5, March 10 and 12. Twenty-two to twenty- five participants attended each event. Susan presented a snake program at the Fulton Montessori School in Richmond and a herp program for the Hampton University Mid-Atlantic Biodiversity Course in November and conducted three additional February events. Erin Anthony, VHS Vice President, recorded two 3-minute radio segments about herpetology on the Delmarva Peninsula for WESR radio station (103.3 FM) on the eastern shore of Virginia, which aired in late August and early September. Erin also spoke about Herpetology during the statewide bioblitz conducted by the Virginia Academy of Science in September. Mark Khosravi, VHS Advisory Committee member, Bonnie Keller and VHS member Bill Crisp continue to help with public education through their snake relocation efforts. Yona Britto, VHS Outreach Committee Chair, has a weekly Facebook post called "Snake Facts Saturday" that typically features native snakes and is cross posted to at least 6 different national sites.

5 Regulatory Affairs

Larry Mendoza, VHS Regulatory Affairs Committee Chair, was unable to attend the meeting.

6. HerpBlitz

Jason Gibson, VHS Survey Committee Chair, indicated he would try again to schedule the HerpBlitz for Northside River Park in 2021 which was previously planned for June 2020, despite hassles over legal liability issues. The first week of June would be the initial target date although there was still sufficient time to coordinate dates with the Conservation Committee and Annual Spring surveys to avoid any potential conflicts. Bonnie Keller indicated she had a Facebook conversation with Greg Williamson, the former park ranger for Northwest River Park, which is still monitoring two large Canebrake Rattlesnakes, one named Mikey and another newer find.

7. Merchandise

Nell Koneczny, VHS Online Store Manager, reported that the online store was up and running in late October and that VHS had netted $153.10 in November. This compares very favorably with the annual café press net of about $119. VHS will net about $5 per merchandise item as compared with $2 in café press. Nell indicated that she would be stepping down from Merchandise for personal reasons (related to a lack of clear VHS disabled person protocols), but she will be happy to help with the transition to a new Online Store Manager. Travis Anthony

requested recommendations for a successor candidate but believes that due to Nell's efforts the Online Store appears to run itself.

8. Treasurer

Matt Close, VHS Treasurer, reported that the current VHS cash balance is $20,877.08 which is up $4,219 or 25% this year. This is the balance after most of the 2021 expenses have been paid. Two remaining expense items are postage/printing for Catesbeiana (<$75) and the Exhibitors Permit renewal fee. VHS has benefitted from a significant increase in lifetime memberships since June (7 for $1,575). Donations since June are $326 and Amazon Smile contributions totaled $276.69. Café press recently contributed $33.49 and as Nell Koneczny reported the Online Store contributed $153.10. Major expenses were for the Fall Virtual Meeting which totaled $3,095.25. A previously accounted for research grant check of $500 was also cashed since June. Matt reported that for the last three years, VHS income exceeded expenses by 17% in 2018, 19% in 2019 and 25% in 2020. Despite higher spending, the VHS cash balance has been growing. Matt will meet with Nell prior to publishing the Treasurer report to align PayPal gross payments by name with VHS net receipts.

9. Secretary/Conservation

Dave Perry, VHS Secretary and Conservation Committee Chair, mentioned that there was an apparent problem with membership renewal payments made during the October 2019 Fall Meeting. The VHS membership list was not updated to reflect those payments and renewal reminders were therefore never sent. Ex-Com members not on the current VHS membership include Mike Clifford, Matt Close, Bonnie Keller, John Orr, Dave Perry, Paul Sattler, Kory Steele, and John White (although Perry and White are paid-up). Dave indicated that it was important to update membership and get on the membership list in order not to miss email correspondence from the VHS. For this reason, some members did not receive the email link to the hang outs at the recent Fall Meeting. Mike Clifford remembered being told that when using PayPal, you would automatically be renewed. Matt Close confirmed that would happen if you selected the subscription option. Matt also stated if a member paid at the Fall Meeting, it was not a matter of non-payment but more likely a matter of the VHS membership not being updated. Mike Clifford mentioned when receiving herp ID requests that he sometimes gets complaints from new VHS members that their payments were not being acknowledged. Travis Anthony indicated that VHS will be addressing these issues via the Outreach Committee.

10. Website

John White, VHS Webmaster, reported that the PHP interface has been added to the data base and the Green Anole has been added as a lizard species.

11. Outreach

Yona Britto, VHS Outreach Committee Chair, provided a comparison of 2019 and 2020 VHS membership. Lifetime membership increased from 66 in 2019 to 81 in 2020. Annual membership increased from 167 in 2019 to 295 in 2020. Student membership decreased slightly from 16 in 2019 to 14 in 2020. Yona also summarized recent discussions among a few Ex-Com members during the fall about acknowledging new memberships (student, annual and lifetime) and improving benefits and communication. No decisions were made but some of the ideas include sending new student and annual members an acknowledgement letter including something

like a certificate or a small gift like stickers or artwork. Travis Anthony mentioned it was also felt that lifetime members should receive something more specific of higher value like a t-shirt given the large $ outlay of lifetime membership. Yona suggested that VHS provide a purchase form to make sure new member contact details are correct. There have some instances where PayPal membership purchases were either a gift for a child or another person and VHS emails have been sent to the purchaser rather than VHS member who received the gift. John White suggested that Yona send an email to him with data collection recommendations and he would see what could be done. Yona agreed to resend a Travis Anthony email dated Sept. 28 to John to address this. Travis Anthony asked about progress with mail chimp. Yona indicated she is still working on a mail chimp greeting for members and a reminder email as soon as a member is added to the list. Yona reported there were discussions about increasing VHS dues to provide more membership value. Dave Perry responded because of the pandemic it was decided to postpone that decision even though the VHS has not increased its dues structure in a long time. Matt Close expressed support for a fee increase to at least cover the postage for first class mail (~ $0.70/each) to members and PayPal transaction commissions. (~$0.50/each). Yona Britto also mentioned the possibility of conducting a poll of lifetime members to determine a gift they would prefer. This poll could also include an opt-out selection. Travis Anthony said he had been sending lifetime members an acknowledgement email and felt it was important to improve communication with all members, given the large membership increase and especially lifetime members. Travis indicated no final decisions will be made today and welcomed email suggestions from Ex-Com members on this topic.

12. Grants

Kory Steele, VHS Research Grants Committee Chair, was unable to attend the meeting.

13. Advisory Committee

Megan Thomas, VHS Advisory Committee, is new to the VHS, joining during the pandemic. and this is her first VHS business meeting. Mark Khosravi reported that most of his activities were community involvement including herp education and copperhead removal. Recently he presented to the National Wildlife Control Operators on amphibians and reptiles and non-lethal wildlife trapping to new WCOs seeking to obtain certification. Mark said he always promotes the VHS. When he is removing copperheads, Mark suggests his customers contribute to VHS, in lieu of payment. He does not know if the suggested contributions happen. Jason Gibson suggested that Mark provide a flyer with a VHS addresses envelope on these occasions. Bonnie Keller liked this idea and suggested VHS provide printed flyers and pre-stamped envelopes that Mark, Bonnie and Yona Britto could use when they provide free snake removal. Nell Koneczny recommended VHS also include the electronic links the VHS has established for membership and the store etc. as a payment option. Bonnie also suggested using QR codes.

14. Past President

Matt Neff, VHS Past President, indicated that he would like to do a follow-up survey of Lake Anna State Park in 2021 (if COVID-19

cooperates) as was previously planned in 2020. The 2018 spring survey there was a great success and about 10 new Spotsylvania County records were documented. Matt believes there might be another 10-12 species present that have not yet been documented for the county. Matt would schedule a smaller, perhaps members-only survey and would work around the dates for the other major surveys.

New Business

1. By-Laws Review/Updating (from planning group)

Travis Anthony introduced this new business topic for discussion. Travis recommended that a planning group be formed, comprised of a mix of veterans and newer members, to review the VHS Constitution and By-Laws and recommend and present changes to the Ex-Com by the Spring Meeting. Nell Koneczny passed along some suggestions for By-Law changes from Erin Anthony concerning clarity about who qualifies for Ex-Com membership, more formal elections for Officers/Ex-Coms, including credentials reviews/presentations. Travis Anthony suggested there is probably a lot of dated requirements such as written three-month notifications for business meetings. Nell noted that changes in the By-Laws must be offered three months in advance of any change decisions which will make it difficult to accomplish anything in time for the Spring Meeting. Travis indicated that we should take the time necessary and the Fall Meeting would be acceptable for final decisions. Mike Clifford and Bonnie Keller volunteered to be on the planning group and Travis suggested other volunteers should email him.

2. Spending Budget/Approval Process for Monetary Decisions

Travis Anthony suggested a planning group be formed, including the VHS Treasurer, to plan budgets/expenses and for monetary decisions. Matt Close suggested it would be a good practice to establish written budget protocols for expense allocation and noted there was no recent precedent. Dave Perry mentioned the two largest expense items are education/research grants and the annual Fall Meeting and these expenses could be planned well in advance. He also suggested with the election of new officers, every two years, the VHS should establish authority spending limits for the President for routine spending items not requiring Ex-Com approval. Travis welcomed volunteers for the budget planning group.

3. Lifetime Membership Benefits

This topic was discussed in the Outreach Committee report noted above.

4. Potential Survey Sites for 2021 and Safety Protocols

During the Committee reports Jason Gibson had suggested Northside River Park as a potential HerpBlitz survey site and Matt Neff would like to survey Lake Anna State Park with a smaller survey group. Travis Anthony indicated that Pocahontas State Park would be willing to reschedule the proposed 2020 survey for 2021. Likewise, Dave Perry suggested the Conservation Committee could probably survey Chippokes Plantation State Park. Jason Gibson indicated he is not sure about the multi-year research project survey of Great Dismal Swamp. He will have think about it although it might be better to start the project in 2022. Travis Anthony is also thinking about a possible return in the spring to a different section of the Appomattox/ Buckingham State Forest. Much of the discussion involved safety protocols for herping in the COVID-19 era. Travis suggested that if surveys are planned, all necessary permits must be obtained, and safety protocols developed within local and state-wide requirements. Survey group size

should be limited, social distancing maintained and masks worn when close to others. Yona Britto asked if hand sanitizer was harmful to handling of amphibians and Matt Close indicated it should be avoided and replaced with soap and water, which can provide better diinfection anyway. Jason Gibson suggested a problem could be the availability of campsites and lodging at state parks, but Travis Anthony mentioned he was able to camp in October at Bear Creek Lake State Park with social distancing and mask wearing in the restrooms and park office. Travis indicated the VHS needed to avoid any situation in which we learn after a survey that someone either spread COVID-19 to other surveyors or could claim they were infected as a result of a VHS survey. Yona Britto asked if the VHS used Liability forms for the surveys. Travis Anthony responded that VHS uses them but not consistently and these are not thought to provide sufficient protection for a legal challenge. Matt Neff suggested that survey decisions could wait until February/March. In general, there was optimism that VHS could schedule surveys in the spring as there is lower spread risk in outdoor activities and with proper protocols (handwashing, masks, gloves, limited participation etc.). Erin Anthony suggested investing in critter carriers to avoid close contact when interesting herps are found.

5. Discuss Forming New Committees Travis Anthony led the discussion on this topic and suggested there may be a need for three new committees: Diversity Equity and Inclusion, Accessibility and Large Event Planning (fall meeting/spring survey). Obviously, if any new committees are formed, the VHS will need to find leaders and contributors for each. Diversity, equity and inclusion is an obvious need but might fall under the role of the Outreach Committee or possibly the Education Committee. Accessibility would focus on using all available communication channels (Facebook, website etc.) to reach all current VHS members who may want to participate in VHS events. Travis highlighted the great teamwork that produced the successful recent Fall Meeting as evidence of what can be accomplished with the formation of a Large Event Planning Committee. He explained his lack of contacts for presenters was substantially aided by the team approach for the Fall Meeting. No decision was made but these ideas will be further developed for future presentation to the Ex-Com.

6. Travel to Training Opportunities
Bonnie Keller introduced this topic on behalf of Larry Mendoza. The Rattlesnake Conservancy will provide free venomous snake training in Florida for four days in January. However, with COVID-19 it is not clear if the January training session will proceed. If not, it will probably be rescheduled for another date. The question is would VHS reimburse members who plan to take the course for all or a portion of their travel and living expenses. The potential benefit to the VHS is the opportunity for VHS members who complete the course to become trainers of other members to handle and relocate native venomous snakes. There could also be a VHS revenue opportunity for training WCOs etc. Could this be considered aa Educational or Research Grant opportunity? A lengthy discussion ensued. Mark Khosravi has taken this or similar courses for at least the last 10 years and finds them empowering. During each session he learns something new, which helps him maintain his certification. Mark indicated he will attend anyway and use his own money. In terms of venomous snake handling/relocation, there are permits required and legal liability issues. Susan Watson suggested the VHS must be careful as snake relocation is a permitted activity and is not open to everybody. Erin Anthony

suggested there must be educational value if VHS funds are used. Nell Koneczny reminded everyone that we also need to consider the equity value of any grants or expenditure of VHS funds, so that all similarly qualified VHS members would have an opportunity to participate. Mark Khosravi outlined the expense associated with the WCO permit: book ($50), test ($200), and permit ($75). In addition, WCOs must maintain extensive pest removal/retention records for submission and continued training/ education credits to maintain certification. Mark does not charge for his services but provides it for community goodwill and to prevent snake casualties. Bonnie Keller and Yona Britto provide similar community service. Long term there may be an opportunity to study the impact of Copperhead relocation. Megan Thomas initiated venomous snake training in North Carolina for damage control officers. In her experience, most of those trained were not altruistic like Bonnie, Mark and Yona, but operated pest control businesses for a profit. John White pointed out that it is against the VHS Constitution to fund activities that benefit a private person or individual.

Bonnie Keller suggested VHS could stipulate that requirement as a parameter for grant receipt. John White and others were highly skeptical about the VHS's ability to enforce those parameters. Dave Perry suggested that research on the long-term impact of copperhead relocation might qualify for a VHS research grant. While there was some skepticism about using VHS funds for venomous snake handling/relocation, no final decision was made. Travis Anthony suggested that we give Larry Mendoza, who was not present, an opportunity to address the issues that were raised and that we also include Kory Steele in the discussion to understand how VHS grants might be structured for this purpose.

There being no other business to discuss, Travis Anthony adjourned the meeting at approximately 19:43 h.

Dave Perry
VHS Secretary

PRESIDENT'S CORNER

Hello everyone, I hope you are doing well. We have heard so many times this year about all of the negative things happening, especially with the pandemic. With vaccines on the way and continued practice of social distancing and mask wearing as recommended by health professionals, we are hopefully near the conclusion of it. This is the reason that, unfortunately, we were not all able to get together for our traditional field surveys and fall meeting this year. I have missed seeing all of you in person! Attending the fall meeting and participating in surveys were two of my favorite things as a member, and they continue to be activities I look forward to each year.

On a positive note, I am proud of our organization for making the best of the situation and trying to stay engaged with our members and the general public. Our vice president, Erin Anthony, organized two virtual herp surveys over the summer, and it was awesome to see so many individuals get outdoors and participate on their own and in a safe manner. Several executive committee members and other members continue to be involved in educational programs, and a summary of these activities can be found in our annual educational report on our website, courtesy of our education committee chair, Mike Clifford.

The fall meeting this year was created as a virtual symposium, featuring herpetologists from Virginia, several other states, and other countries. The event also had accessibility features for a diverse audience; you likely noticed the sign language interpreters or captioning if you watched. If you were able to participate, thank you so much, and I hope it was enjoyable for you. I want to send a thank you to our vice president Erin, regulatory committee chair Larry Mendoza, treasurer Matt Close, and other members of the executive committee for their help in planning the virtual symposium. A special thank you goes to Nell, our former merchandise committee chair, for the incredible amount of work and preparation she volunteered to do, and continues to do for post-production, to ensure a successful event, and not to mention creating a great new merchandise store. The VHS will continue to strive for accessibility and diversity as we continue our mission of educating the public about Virginia native herpetofauna, as well as encouraging research to answer important questions about the animals we love. Our membership and executive committee are growing and becoming more diverse, which is a wonderful part of the growth of our organization as a whole.

Looking forward to 2021, we have our fingers crossed to be able to host a few traditional field surveys. Any plans will need to have safety as a number one priority, and thus we will strictly adhere to any local and state guidelines if we are able to host any surveys. Be on the lookout for news on any events via your email, our website, and our Facebook page.

In the meantime, continue enjoying the natural world around you in a safe manner (studies show that spending time outdoors reduces stress). Soon enough, many of you will be hearing the distinctive call of Wood Frogs, unless you live in Richmond like me, then you will need to hope for Spring Peepers on warmer days, and wait for Chorus and Leopard Frogs.

Happy herping, everyone!

Travis Anthony
President

Treasurer's Report

A Treasurer's Report was not available at this time.

Field Notes

The Field Notes section of *Catesbeiana* provides a means for publishing natural history information on Virginia's amphibians and reptiles that does not lend itself to full-length articles. Observations on geographic distribution, ecology, reproduction, phenology, behavior, and other topics are welcomed. Field Notes will usually concern a single species. The format of the reports is: scientific name (followed by common name in parentheses), state abbreviation (VA), county and location, date(s) of observation, observer(s), data and observations. The name(s) and address(es) of the author(s) should appear one line below the report. Consult the editor if your information does not readily fit this format. **All Field Notes must include a brief statement explaining the significance of the record** (e.g., new county record) **or observation** (e.g., unusual or rarely observed behavior, extremely early or late seasonal record, abnormal coloration, etc.). Submissions that fail to include this information are subject to rejection. Relevant literature should be cited in the body of the text (see Field Notes in this issue for proper format). All submissions will be reviewed by the editor (and one other person if deemed necessary) and revised as needed pending consultation with the author(s).

If the Field Notecontains information on a **new county (or state) record**, **verification is required in the form of a voucher specimen** deposited in a permanent museum (e.g., Virginia Museum of Natural History) or a **photograph** (print, slide, or digital image) **or recording** (cassette tape or digital recording of anuran calls) deposited in the archives of the Virginia Herpetological Society. Photographs and recordings should be sent to the editor for verification and archiving purposes; the identity of voucher specimens must be confirmed by a museum curator or other qualified person. Include the specimen number if it has been catalogued. Prospective authors of distribution reports should consult Mitchell and Reay (1999. *Atlas of Amphibians and Reptiles in Virginia*), Mitchell (1994. *The Reptiles of Virginia*), and Tobey (1985. *Virginia's Amphibians and Reptiles: A Distributional Survey*) **[both atlases are available on-line on the VHS website]** as well as other recent literature to determine if they may have a new county record. New distribution records from large cities that formerly constituted counties (Chesapeake, Hampton, Newport News, Suffolk, and Virginia Beach) are acceptable, but records from smaller cities located within the boundaries of an adjoining county will only be published if the species has not been recorded from that county. Species identification for observational records (e.g., behavior) should be verified by a second person whenever possible.

PHOTOGRAPHS

High contrast photographs (prints, slides, or digital images) of amphibians and reptiles will be considered for publication if they are of good quality and are relevant to an accompanying article or field note. Digital images are preferred. Prints should be on glossy paper and no larger than 5 x 7 inches. Published photographs will be deposited in the Virginia Herpetological Society archives.

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